OFFICIAL PROPOSALS

Bids: July 5.

Bridge

Freehold, N. J.

Notice is hereby given that sealed bids will be received by the Board of Chosen Freeholders of the County of Monmouth for the construction of Bridge No. Mn-30, Water St., Englishtown, consisting of one 36' skew span with I beams encased in concrete, a 30' reinforced concrete roadway, two 6' sidewalks and concrete abutments on a timber pile foundation, and opened and read in public at the rooms of said board, Court House, Freehold, New Jersey, on July 5th, 1923, at 11:00 a.m., daylight saving time .

Drawings and specifications for the proposed work, prepared by George K. Allen, Jr., County Engineer, have been filed in the office of said Engineer at 60 Broad street, Red Bank, New Jersey, and may be inspected by prospective bidders during business hours. The standard proposal form is attached to the specifications, copies of which will be furnished on application to the Engineer.

Plans and specifications will be furnished to prospective bidders upon payment of ten dollars ($10.00), which amount will be refunded upon return of plans and specifications before the time specified for the opening of bids.

Bids must be made on the standard proposal forms in the manner designated therein and required by the specifications, must be enclosed in sealed envelopes, bearing the name and address of the bidder and name of proposed work on the outside, addressed to the Board of Chosen Freeholders of the County of Monmouth and must be accompanied by a certified check for a sum not less than ten (10) per cent of the amount bid on the work, payable to the order of the County Treasurer and a surety company certificate stating that said surety company will provide the bidder with the required bond, and must be delivered at the place and before the hour above named.

The Board of Chosen Freeholders of the County of Monmouth reserves the right to reject any or all bids if deemed to the best interests of the County so to do.

By order of the Board of Chosen Freeholders of the County of Monmouth.

BRYANT B. NEWCOMB, Director.

ATTEST:
CHARLES E. COLE, Clerk.
Freehold, N. J., June 6th, 1923.

Bids: July 9.

Concrete Pavement

Keyport, N. J.

Notice is hereby given that sealed bids will be received by the Mayor and Borough Council of the Borough of Keyport for the construction of a concrete pavement on Maple Place extending from the concrete State Highway known as Broad St., Westerly to the concrete County Road known as Broadway and opened and read in public at the Borough Hall, Keyport, N. J., on July 9, 1923, at 8 p.m.

Drawings and specifications for the proposed work, prepared by John T. Hopkins, Special Borough Engineer, have been filed in the office of the Borough Clerk, located in the Borough Hall in Keyport, N. J., and may be inspected by prospective bidders during business hours. The standard proposal form is attached to the specifications, copies of which will be furnished on application to the Borough Clerk.

Plans and specifications will be furnished to the prospective bidders on payment of ten dollars ($10.00), which amount will be refunded upon return of plans and specifications before the time specified for the opening of the bids.

Bids must be made on the standard proposal forms in the manner designated therein and required by the specifications, must be enclosed in sealed envelopes, bearing the name and address of the bidders and the name of proposed work on the outside, addressed to the Mayor and Borough Council of the Borough of Keyport and must be accompanied by a certified check for a sum not less than ten (10) per cent of the amount bid on the work, payable to the order of the Borough Collector and a surety company certificate stating that said surety company will provide the bidder with the required bond, and must be delivered at the place and before the hour above named.

The Mayor and the Council of the Borough of Keyport, reserves the right to reject any or all bids if deemed to the best interest of the Borough so to do.

By order of the Mayor and Council of the Borough of Keyport.

THOS. L. SMITH,
Mayor.

Attest:
ELSIE OSBORN, Clerk.
Keyport, N. J., June 5, 1923.

OFFICIAL PROPOSALS

Bids: July 18.

Delaware River Bridge

CONTRACT NO. 7
ANCHORAGE CABLE BENTS

Philadelphia, Pa.

Sealed proposals for the construction of the Anchorage Cable Bents of the bridge over the Delaware River connecting the City of Philadelphia, Pa., and the City of Camden, N. J., will be received by the Delaware River Bridge Joint Commission at Room 806 Widener Building, Philadelphia, Pa., until 1:30 o'clock p.m., Eastern Standard Time, July 18, 1923, when they will be publicly opened and read. The contract will be awarded, or all bids rejected, within fourteen days after bids are opened. The right is reserved to reject any or all bids.

The two anchorages on which the anchorage cable bents are to be erected are located in the area bounded by Delaware Avenue, Race, Front and Summer Streets in Philadelphia, and immediately north of Pearl Street and about 472 feet west of Delaware Avenue in Camden. The work will include the furnishing, fabricating, painting and erecting of the steel anchorage cable bents complete as shown in the contract drawings, ready to receive the cables. The work comprises approximately 1,900 tons o steel work, and must be completed within a period of nine months.

Bids must be made upon the blank proposal form, which, together with specifications, bond and contract form, and contract drawings, may be obtained at the office of the Joint Commission, upon deposit of $25.00, which deposit will be refunded upon the receipt of bid or upon the return in good condition of the copies so taken.

Each proposal must be accompanied by a certified check for Twenty-five Thousand Dollars, drawn upon a national or state bank or trust company having an office either in Philadelphia or Camden, and payable to the Delaware River Bridge Joint Commission, and surety's consent must be shown. The bidder or bidders to whom the contract is awarded will be required to give bond in the sum of fifty per cent of the amount of the contract.

DELAWARE RIVER BRIDGE JOINT COMMISSION,
GIFFORD PINCHOT, Chairman,
JOSEPH K. COSTELLO, Secretary.

Bids: July 2.

Dam Construction

Beacon, N. Y.

Sealed proposals will be received by the City Council at its office No. 525 Main Street, Beacon, N. Y. at eight (8) o'clock p.m., Daylight Saving Time, July 2nd, 1923, for the construction of Dam at Melzingah Reservoir, Beacon, N. Y., which proposals will be opened by the Mayor or presiding officer on that day and time or on such subsequent day as the council may adjourn for that purpose.

No proposal shall be considered unless accompanied by the written consent of two sureties, conditioned that if the proposal be accepted, they will execute and deliver a bond with the bidder in a penalty to be fixed by the council conditioned for the construction of the work at the price and upon the terms proposed, according to the plans and specifications therefor, within such reasonable time as the council may limit, and subject to the supervision and approval of the Commissioner of Public Works as the specifications shall provide.

Prospective bidders are requested to visit the site of the proposed work in order to satisfy themselves as to the scope and hazards of the work.

Plans and specifications, form of proposal, bond and contract may be obtained at the office of the city, No. 525 Main Street, Beacon, New York, or at the office of George W. Krieger, Jr., Consulting Engineer, Poughkeepsie, N. Y., upon the deposit of $15.00, which amount will be refunded upon the return of the plans and specifications in good condition.

The proposal shall be accompanied by a certified check drawn upon an incorporated State or National Bank or Trust Company in good credit, within this State, payable to the order of the City of Beacon for five per cent of the amount of the bid. The successful bidder will be required to give a satisfactory bond for the faithful performance of the agreement in amount equal to fifty per cent of the value of the contract.

The City Council of the City of Beacon reserves the right to reject any or all bids.

By order of the City Council of the City of Beacon.

MARCUS G. MacLAUGHLIN,
Commissioner of Public Works.

OFFICIAL PROPOSALS

Bids: July 10.

Drainage Ditch and Improvement

DISTRICT NO. 6

Ottumwa, Ia.

In the Matter of the Cedar Creek Drainage District No. 6, of Wapello County, Iowa, and Drainage Ditch and Improvement therein:

Notice is hereby given that in pursuance of an order of the Board of Supervisors of Wapello County, Iowa, made on May 17, 1923, sealed bids will be received by the undersigned for said Board up to Two o'clock p.m. on July 10, 1923, at the Court House, Ottumwa, Ia., but not later, for the construction of said Drainage Ditch and improvement in said Drainage District No. 6, of Wapello County, Ia., in accordance with the approved plans, profiles, specifications, and contract in blank form for bids, and bond therefor, on file in my office; said work thereof being described as follows, and having the approximate estimated amount and quantities as specified, but which may be found to be either more or less on final measurement:

The beginning point of said Ditch and Improvement is at E. of CM. & ST. P. R. RY. bridge No. 1-352 in N. W. ¼, S. W. ¼, Sec. 21-Highland Twp. 73-R 13 W. and ending at the E. ¼ Cor. S. E. ¼ Sec. 36-Highland Twp., a distance of 4.47 miles, divided into sections as follows:

Sec. A-1—34,966 cu.yds. Start work on or before Nov. 1, 1924. Completed by Dec. 1, 1924.

Sec. B-2—38,541 cu.yds. Start work on or before Sept. 1, 1924. Completed by Nov. 1, 1924.

Sec. C-3—30,904 cu.yds. Start work on or before Aug. 1, 1924. Completed by Sept. 1, 1924.

Sec. D-4—43,822 cu.yds. Start work on or before June 15, 1024. Completed by Aug. 1, 1924.

The estimated quantity of material to be excavated in said entire Ditch is 148,233 cu. yds. of excavation. This work consists in cutting a continuous channel as located, which channel is 10 feet in width at the bottom, and side slopes shall be one foot horizontal to one foot vertical; side slopes shall be left smooth and uniform, and bottom of channel shall be brought to proper grade elevation and left smooth and uniform, and with an approximate depth of 9½ feet; right of way 125 feet in width from place of beginning to CM. & ST. P. Bridge in Sec. 27-73-13 and 150 feet in width from there to the end.

Bids will be submitted for the entire work; and the price must be stated in both words and figures, and permission will not be granted to amend or withdraw any bid after filing with the County Auditor. Maps plans, profiles, specifications, and form for bids, contracts, etc., are on file in my office, and at the office of Brown & Cook, Engineers, Ottumwa, Iowa, and can be examined. The Board will award contract to the lowest responsible bidder therefor; but the right is hereby expressly reserved by said Board to reject any or all bids and to readvertise the letting of said work; and no bid will be considered unless on the approved form for bids furnished by the undersigned.

All bids must be signed with the recognized name of the Contractor or firm who expects to do the work if awarded the contract, and each bid must be accompanied by a certified check of some reputable bank, in the sum equal to ten per cent, of the amount of the bid, (but not to exceed $10,000.00), drawn in favor of the County Auditor of Wapello County, Iowa, as a guarantee of good faith in entering on said contract, and if awarded the contract for said work, the bidder will within ten days from the date of notice thereof, enter into said contract therefor and execute said Bond therefor, or deposit cash, as provided by law in the sum of twenty-five per cent of estimated cost of said work so let by such contract. The checks of unsuccessful bidders will be returned to them respectively as soon as award is made. All provisions of present Drainage Laws of Iowa are made a part of all said contracts.

All bids must be sealed and marked on the outside of envelope: Bid for Contract on Cedar Creek Drainage Ditch, No. 6, and addressed to Fred W. Prosser, County Auditor, Ottumwa, Wapello County, Iowa. The bids will be opened at Two o'clock p.m. on July 10, 1923, in the offic of the Board of Supervisors, in Court House at Ottumwa, Iowa, and the contract, u awarded by the said Board as soon as practicable thereafter on said date.

Witness my hand and seal this day of May, 1923. FRED W. PROSSER.
County Auditor of Wapello Co., Ia.

OFFICIAL PROPOSALS

Bids: July 10.

Drainage Ditch and Improvement

DISTRICT NO. 4

Ottumwa, Ia.

In the Matter of the Cedar Creek Drainage District No. 4, of Wapello County, Iowa, and Drainage Ditch and improvement therein:

Notice is hereby given that in pursuance of an order of the Board of Supervisors of Wapello County, Iowa, made on May 17th, 1923, sealed bids will be received by the undersigned for said Board up to Two o'clock p.m., on July 10, 1923, at the Court House, Ottumwa, Ia., but not later, for the construction of said Drainage Ditch and improvement in said Drainage District No. 4, of Wapello County, Iowa, in accordance with the approved plans, profiles, specifications, and contract, in blank form for bids, and bond therefor, on file in my office; said work thereof being described as follows, and having the approximate estimated amount and quantities as specified, but which may be found to be either more or less on final measurement:

The beginning point of said Ditch and Improvement is at West ¼ Cor. N. W. ¼ Sec. 31-Competine Twp. 73-r 12 W. and ending in the S. E. ¼ Sec. 13 Pleasant Twp. 72-r. 12 on the Wapello Jefferson County Line, a distance of 7.23 miles divided into sections as follows:

Sec. E-5—42,636 cu.yds. Start work on or before May 1st, 1924. Complete by June 15, 1924.

Sec. F-6—42,129 cu.yds. Start work on or before Mch. 15, 1924. Completed by May 1, 1924.

Sec. G-7—43,643 cu.yds. Start work on or before Feb. 1, 1924. Completed by March 15, 1924.

Sec. H-8—37,654 cu.yds. Start work on or before Dec. 20, 1923. Completed by Feb. 1, 1924.

Sec. I-9—35,204 cu.yds. Start work on or before Nov. 15, 1923. Completed by Dec. 20, 1923.

Sec. J-10—24,258 cu.yds. Start work on or before Oct. 20, 1923. Completed by Nov. 15, 1923.

Sec. K-11—31,310 cu.yds. Start work on or before Sept. 15, 1923. Completed by Oct. 20, 1923.

The estimated quantity of material to be excavated in said entire ditch is 256,834 cu.yds. of excavation. This work consists in cutting a continuous channel as located, which channel is 12 feet in width at the bottom, and side slopes shall be one-half foot horizontal to one foot vertical; side slopes shall be left smooth and uniform, and bottom of channel shall be brought to proper grade elevation and left smooth and uniform ,and with an approximate depth of 10½ feet; right of way 100 feet in width.

Bids will be submitted for the entire work; and the price must be stated in both words and figures, and permission will not be granted to amend or withdraw any bid after filing with the County Auditor. Maps, plans profiles, specifications, and form for bids, contracts, etc., are on file in my office, and at the office of Brown & Cook, Engineers, Ottumwa, Iowa, and can be examined. The Board will award contract to the lowest responsible bidder therefor; but the right is hereby expressly reserved by said Board to reject any or all bids and to readvertise the letting of said work; and no bid will be considered unless on the approved form for bids furnished by the undersigned.

All bids must be signed with the recognized name of the Contractor or firm who expects to do the work if awarded the contract, and each bid must be accompanied by a certified check of some reputable bank, in the sum equal to ten per cent, of the amount of the bid, (but not to exceed $10,000.00), drawn in favor of the County Auditor of Wapello County, Iowa, as a guarantee of good faith in entering on said contract, and if awarded the contract for said work, the bidder will within ten days from the date of notice thereof, enter into said contract therefor and execute said Bond therefor, or deposit cash, as provided by law in the sum of twenty-five per cent of estimated cost of said work so let by such contract. The checks of unsuccessful bidders will be returned to them respectively as soon as award is made. All provisions of present Drainage Laws of Iowa are made a part of all said contracts.

All bids must be sealed and marked on the outside of envelope: Bid for Contract on Cedar Creek Drainage Ditch, No. 4, and addressed to Fred W. Prosser, County Auditor, Ottumwa, Wapello County, Iowa. The bids will be opened at Two o'clock p.m., on July 10, 1923, in the office of the Board of Supervisors, in Court House at Ottumwa, Iowa, and the contract, if awarded will be awarded by the said Board as soon as practicable thereafter on said date.

Witness my hand and seal this day of May, 1923.

FRED W. PROSSER,
County Auditor of Wapello Co., Ia.

Bids: July 17.

Water Works, Sewers, Street Improvements

Deland, Fla.

Sealed proposals will be received by the Board of Bond Trustees of the City of Deland, Florida, at the City Hall, for furnishing material and constructing water works improvements, sanitary and storm sewer systems and street improvements in and for the City of Deland, Florida, until 4 p.m., July 17, 1923, at which time they will be opened and read publicly.

The work includes the furnishing of all labor, material machinery and equipment of every kind necessary to construct approximately 95,000 square yards of brick, concrete, or bituminous pavements with necessary curb, gutter and appurtenances, approximately 2⅓ miles of storm drains 12 to 24 inches with accessories. Approximately 12 miles sanitary sewers 6 to 18 inches with accessories, approximately 8 miles water mains 4 to 10 inches with specials, three pumps, two pump houses, one generator unit and accessories, all complete and in accordance with plans and specifications on file at the office of the Engineers and the City Clerk.

Each bid must be accompanied by a certified check on a bank satisfactory to the Bond Trustees or Bidders Bond acceptable to Bond Trustees for five (5) per cent of the amount of the bid, drawn to the order of the City of Deland, Florida.

A bond in the sum of twenty (25) per cent of the amount of the contract with satisfactory surety executed through Deland, Florida, agency will be required for the faithful performanc of the work.

All bids will be compared on the basis of the Engineers' estimates of amount of work to be done.

Copies of the specifications may be obtained from the Engineers upon receipt of deposit of five ($5.00) dollars which will be returned on bona fide bid. Plans may be seen at the office of the Engineer at Deland or Atlanta, Georgia, or at the City Hall. Copies of plans may be obtained on the payment of twenty-five ($25.00) dollars.

The right is reserved to reject any or all bids.

This 8th day of June, 1923.

CITY OF DELAND, FLORIDA
By E. R. CONRAD,
By G. A. DREKA,
By C. L. ALLEN,
Bond Trustees.

J. B. McCrary Engineering Corporation,
Engineers, Atlanta, Georgia.

Bids: July 5.

Grading, Paving and Curbing

Steelton, Pa.

Sealed proposals will be received by the Town Council of the Borough of Steelton, Dauphin County, Pa., until 4:00 p.m. Thursday, July 5, 1923, for the grading, paving and curbing of South Fourth Street, between the southern side of Highland Street and a point two hundred and thirty two and nine-tenths feet south of the southern side of Dupont Street.

Also that portion of Highland Street, beginning at Second Street on the west, and extending along said street in an easterly direction to Fourth Street.

A certified check for 5 per cent of the amount of the bid, payable to the Treasurer of the Borough of Steelton, must accompany each and every proposal. All proposals must be sealed and addressed to the Borough Secretary, 114 Walnut St., Steelton, Pa., and have the words "Street Improvements" marked on the outside of the envelope.

Plans and specifications may be seen, and bidding blanks and all necessary information be had at the office of the Borough Secretary, 114 Walnut St., Steelton, Pa. Council reserves the right to reject any and all bids.

H. R. RUPP,
Borough Secretary.

Bids: July 6.

Sewage Disposal Plant

Grove City, Pa.

Sealed proposals will be received by the Borough of Grove City, Mercer County, Pennsylvania at the Municipal Building until 7:00 p.m. on the 6th day of July 1923 for the construction work and other work incident to the builing of the Grove City Sewage Treatment Plant.

The work consists of the following main parts:

1. Distributing Manhole of Concrete.
2. Settling and Digestion Tanks.
3. Sludge Drying Beds, Glass covered.
4. 525 feet 24" Terra Cotto Pipe.
5. Necessary grading, excavation, etc.
6. Well House for water supply.
7. Other incidental work.

Plans and specifications can be obtained together with proposal sheet from Frank P. Graham, The Borough Engineer or at the office of Banks & Craig, Consulting Engineers, Telegraph Bld'g., Harrisburg, Pa.

A set of plans and specifications can be obtained by placing a deposit of $10.00 drawn to the Borough Engineer, $5.00 of which will be returned if the plans and specifications are returned within 15 days after the award of the contract.

Each bid must be accompanied by a certified check in the amount of $1000.00 payable to the order of the Borough of Grove City as a guarantee that the successful bidder will enter into contract with the Borough within fifteen days after the award of the contract. Checks will be returned to unsuccessful bidders.

The Borough reserves the right to reject any or all bids.

L. L. McKAY,
Secretary.

Bids: July 3.

Alternating Air Lock Siphons

Newton, N. J.

Notice is hereby given that sealed bids will be received by the Water and Sewer Commissioners of the Town of Newton, in the County of Sussex and State of New Jersey for the installation in the East Clinton Street sewage disposal plant, in said town, of a battery of, five (5) twelve inch (12") alternating air lock siphons to draw about two feet. Siphons to discharge into the same discharge lines, as are being used with the present apparatus, after said pipe lines have been relaid to centers as shown on the plans to be furnished by the manufacturer. Alternating siphons to be of the air lock type, with no moving parts. Air connections to be provided with three way valves for cutting out any desired number of beds, the remaining one or more siphons to operate. Siphons to handle intermittently and to discharge the contents of the dosing tank and lock against a twenty-four hour rate of 650,000 gallons.

Masonry work provided by the town, town to set apparatus and furnish and set tile wells.

Said bids will be opened and read in public at the Town Offices, over Howell's Hardware Store, Newton, N. J., July 3rd, 1923, at 6:30 p.m.

The commissioners reserve the right to reject any or all bids.

ETHEL B. HARRISON,
Clerk of Board of
Water Commissioners.

Dated June 16, 1923.

Bids: July 17.

Inclosed Channel

Dunkirk, N. Y.

Sealed proposals for the construction of an inclosed channel and accessories for the diversion of Hyde Creek, in the City of Dunkirk, N. Y., will be received until 8 p.m., eastern time, July 17, 1923, and then publicly opened. The right is reserved to reject any or all bids. Plans and specifications are on file and information may be had on application to the undersigned. Specifications will be forwarded to applicants. To insure return of plans a deposit of twenty dollars ($20) is required for plans mailed, which sum will be returned to applicant upon return of plans.

H. J. HENDERSON,
City Clerk.

OFFICIAL PROPOSALS

Bids: July 9.

Bridges

Trenton, N. J.

Notice is hereby given that sealed bids will be received by the State Highway Commission of New Jersey for the following:

Construction of a steel and concrete bridge of two spans, 42 ft. 4 in. C. to C. of bearings and 34 ft. 0 in. wide, including fill approaches Cedar Creek at M. P. 41.1 on State Highway Route No. 4, in the municipality of Berkley and Lacey Townships, and the County of Ocean.

Bids for the above will be received at the Assembly Chamber, State House, Trenton, New Jersey, on Monday, July 9th, 1923, at 11:45 a.m., Standard Time, and opened and read immediately thereafter.

Construction of a reinforced concrete slab bridge of one span, 22 ft. 10 in. between neat lines and 34 ft. 10 in. wide, over Primrose Brook, at M. P. 33.7 on State Highway Route No. 16 in the municipality of Harding Township, in the County of Morris.

Bids for the above will be received at the Assembly Chamber, State House, Trenton, New Jersey, on Monday, July 9th, 1923, at 12:00 noon, Standard Time, and opened and read immediately thereafter.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of Mr. John L. Vogel, Bridge Engineer, 772 Broad St., Newark, New Jersey, and may be inspected by prospective bidders. Plans will be furnished on a deposit of Ten Dollars ($10.00) upon application to Mr. John L. Vogel, Bridge Engineer, 772 Broad St., Newark, New Jersey. Bids must be made on the standard proposal form in the manner designated therein and as required by the specifications for this work, same to be enclosed in sealed special addressed envelopes, bearing the name and address of the bidder and the work bid upon on outside, and must be accompanied by a certified check drawn to the order of the State Treasurer for not less than ten per cent (10%) of the amount of the bid, provided the said certified check shall not be less than $500.00 nor more than $20,000.00, and be delivered at the above place on or before the hour named. Copies of the standard proposal form and special addressed envelope will be furnished on application to Mr. John L. Vogel, Bridge Engineer, 772 Broad St., Newark, N. J. Bids not enclosed in special envelopes will be considered informal and will not be opened.

Each bidder must accompany his bid with a certificate from a surety company duly authorized to do business in this State, stating that such surety company will provide said bidder with a bond in such sum as is required in and in accordance with the provisions of the said specifications, conditioned for the faithful performance of the provisions of the contract and specifications.

By order of the State Highway Commission.

A. LEE GROVER,
Chief Clerk.

Bids: July 16.

Paving

Plainfield, N. J.

Proposals will be received by the Common Council of the City of Plainfield, N. J., at the City Hall on Monday, July 16, 1923, at 8:30 p.m. (Daylight Saving Time), for Bituminous Macadam, Storm Sewers, etc., as follows:

18,000 sq.yds. Bituminous Macadam.
7,000 lin.ft. Concrete Curb and Gutter.
2,200 lin.ft. 18" to 30" Storm Sewers.

Certified check required, $5,000.00.

Construction bond required, 100% of cost of work.

Copies of Plans, Specifications and Forms of Proposals may be obtained at the office of the City Engineer, City Hall, Plainfield, N. J.

The Common Council reserves the right to reject any or all bids, to waive defects in bids, or to accept any bid.

JOHN J. CARROLL,
City Clerk.

OFFICIAL PROPOSALS

Bids: July 17.

Sewer Construction

LETTING NO. 9

Louisville, Ky.

Sealed proposals will be received by the Commissioners of Sewerage of Louisville until 12 o'clock noon July 17th, 1923, for the following sewer constuction in Louisville, Ky.

This letting embraces the following:

Napoleon Boulevard Sewer and Drain and Speed Ave. Laterals "South"

870 lin.ft. of 36" and 640 lin.ft. of 33" Drain.

990 lin.ft. of 21", 505 lin.ft. of 18", 2220 lin.ft. of 15", Vitrified Pipe Drain, 1725 lin.ft. of 12" Vitrified pipe Sewer and Drain, 3970 lin.ft. of 8" Vitrified Pipe Sewer.

Alternate bids invited on constructing 33" and 36" drain of Segment Block, Vitrified Pipe or Monolithic Concrete.

The estimated cost of this work is somewhat over $100,000.

Drawings, form of proposal, contract and specifications may be had at the office of the Commission upon the deposit of ten dollars ($10.00) to secure the return of same in good condition within thirty days.

Each proposal must be inclosed in a sealed envelope addressed to the Commissioners of Sewerage, 417 West Main Street, Louisville, Ky. and accompanied by a certified check drawn upon a state or national bank or a trust company established in the City of Louisville or the city of New York, for an amount not less than seven (7) per cent of the total amount of the accompanying proposal, payable to the Commissioners of Sewerage of Louisville or the bond executed as set forth in the information for bidders.

The right to reject any and all bids is reserved.

COMMISSIONERS OF SEWERAGE
OF LOUISVILLE.
By: MATT H. CRAWFORD,
Chairman.

J. B. F. BREED, Chief Engineer.
P. H. HOGE, Jr., Sec. & Treas.

Bids: July 25.

Bridge

Bridgeport, Conn.

Sealed bids for performing the work of constructing the East Washington Avenue Bridge will be received by the East Washington Avenue Bridge Commission in the Common Council Chamber, City Hall, Bridgeport, Conn., until July 25, 1923, at 3:00 p.m. (Standard Time), at which place and time they will be publicly opened by the Commission and read. The award of the contract, if awarded, will be made by the Commission as soon thereafter as practicable.

For further information apply to City Engineer James A. McElroy.

A charge of Fifty Dollars ($50.00) will be made for copy of specifications and plans, same to be refunded on receipt of bids or return of plans.

The Commission reserves the right to reject any or all bids.

EAST WASHINGTON AVENUE
BRIDGE COMMISSION
FRANCIS P. DUNIGAN, Clerk.

Bids: July 9.

Paving

Richmond, Va.

Sealed proposals will be received at this office until 12 o'clock noon, July 9, 1923, for the paving of Broad Street from Laurel Street to the Boulevard with Durax Block, Vitrified Brick or Sheet Asphalt as set forth in the specifications and proposals.

A deposit of $10.00 will be required to be made for each set of proposals obtained which will be returned only if a bona fide bid is made. Forms of proposals can be obtained on application.

A certified check for amount stated ($12,500.00) on proposals must accompany each bid as a guaranty of execution of contract. The Director of Public Works reserves the right to reject any and all bids.

ALLEN J. SAVILLE,
Director of Public Works.

OFFICIAL PROPOSALS

Bids: July 24.

Bridges and Roads

Charleston, W. Va.

Sealed proposals will be received by the State Road Commission of West Virginia at its office in Charleston, W. Va. until ten o'clock a.m. on the 24th day of July, 1923, and opened and read immediately thereafter at the Kanawha County Court House, Charleston, West Virginia, for the construction of the following bridges and sections of state road:

Projects 3151-C and 48—Boone County—2 miles of the Madison-Danville road for grading, draining and paving with Bituminous Macadam. Certified check $2400.00.

Projects 3261 and 50—Clay County—1.9 miles, South end Clay Court House & Two Mile Run for grading, draining and paving with Bituminous Macadam including additional width to be built by town together with sewers to be installed by town. Certified check $3000.00.

Project 3138—Mason County—Five Mile span and Three Mile Bridge No. 858 Concrete Deck Girder 35 ft. span, to be let in one contract. Certified check $1100.00.

Project 3138—Mason County—Five Mile

Project 3176—Brooke County—0.8 mile of the River Road for paving with cement concrete. Certified check $2000.00.

Project 3114 B & D—Brooke County—1 mile of the River Road for paving with cement concrete. Certified check $1600.00.

Project 3253—Hancock County—3 miles of the River Road from Brooke County line to Kings Creek Bridge for paving with brick. Certified check $3000.00.

Project 3089—Hancock County—1 mile of the River Road for paving with brick. Certified check $1600.00.

Project 3252-A—Pleasants County—1.2 miles of the St. Marys-Ellenboro road for grading and cement concrete paving. Certified check $1500.00.

Project 3197-B—Tyler County—1.5 miles of the Sistersville-Middlebourne Road for grading, draining and paving with waterbound macadam. Certified check $1500.00.

Project 3186—Preston County—5 miles of the Thomas-Gnegy Church road for grading, draining and paving with Cement Concrete. Certified check $9000.00.

Project 3013—Hardy County—5.8 miles of the Oldfields-Hampshire County Line road for completion of the grading, draining and paving with waterbound macadam. Certified check $6000.00.

Project 2064—Ohio County—Springdale Culvert 8 x 10 concrete arch. Certified check $500.00.

Project 3237—Mason County—3.5 miles Lewis District toward Leon Road, for grading and draining. Certified check $2,000.00.

Proposals will be received only upon State Standard forms in accordance with plans, specifications and estimates of quantities therefor, which standard forms, plans, specifications and estimates of quantities may be obtained from the office of the Division Engineer in whose territory the proposed construction is located or from the office of the State Road Commission at Charleston, W. Va.

Each proposal must be accompanied by a certified check for the amount noted.

The right is reserved to reject any and all proposals.

THE STATE ROAD COMMISSION
OF WEST VIRGINIA
E. B. Carskadon, Secretary.

Bids: July 9.

Street Improvement

Laurel, Miss.

Sealed proposals will be received by the Mayor and Board of Commissioners of the City of Laurel, Mississippi, at the office of the City Clerk of said City, up until two o'clock p.m. on the 9th day of July, A. D. 1923, for constructing approximately:

4,852 lin.ft. curb and gutter.
3,542 sq.yds. concrete sidewalk.
3,245 sq.yds. brick paving.
930 sq.yds. concrete paving.
1,117 lin.ft. concrete curb.

Plans and profiles may be seen and specifications and proposal forms may be obtained at the office of the City Clerk of the City of Laurel.

J. H. PACE, Street Commissioner.

CONTRACT BONDS FOR RESPONSIBLE CONTRACTORS

The fact that the Aetna has bonded him may enable a contractor to obtain bank loans and credit from supply companies.

ÆTNA CASUALTY AND SURETY COMPANY

HARTFORD, CONN.

AGENTS EVERYWHERE

OFFICIAL PROPOSALS

Bids: July 20.

Clearing Land of Unmerchantable Timber

Watertown, N. Y.

Sealed bids for clearing the lands to be flowed by the Enlargement of the Stillwater Reservoir on the Beaver River in the Town of Webb, Herkimer County, N. Y., will be received by the Board of the Black River Regulating District at the office of the Water Control Commission, Room 1000, 158 State Street, Albany, N. Y. until one o'clock p.m., Standard Time, on the 20th day of July, 1923; all bids will be publicly opened and read at the time and place aforesaid.

The work to be done consists of the clearing of the unmerchantable timber and timber growth from the land around and above the existing Stillwater Reservoir and within a contour line approximately 19 feet higher than the crest of the spillway of the existing Stillwater Dam. The area to be cleared will include about 3960 acres of land, which will be divided into two sections. Section No. 1 will include about 1400 acres and Section No. 2 about 2560 acres. Any bidder may bid upon the clearing of either one or both sections, and he may also make a separate contingent bid upon either one or both sections, which bid will be contingent upon the acceptance by the Water Control Commission of his bid for the timber upon the state land in such section or sections.

Maps of the reservoir, bidding and contract forms and specifications may be seen at the office of the Board, Watertown, N. Y., and also at the offices of the Water Control Commission and the Conservation Commission at Albany, N. Y. Copies of the maps, forms and specifications may be obtained from the Board on payment of two dollars ($2.00) which will be refunded on their return in good condition within seven days after bids are opened.

All bids must be accompanied by a certified check upon a National or State bank or trust company for five per centum (5%) of the amount of the bid and payable to the order of the Board of the Black River Regulating District.

The Board reserves the right to reject any or all bids and to again advertise for further bids.

BOARD OF THE BLACK RIVER REGULATING DISTRICT.
By E. S. Cullings,
Secretary.

Bids: July 2.

Paving

Gardner, Mass.

Sealed proposals will be received by the undersigned until 11:00 a.m. on July 2, 1923 for the construction of approximately 4,000 sq.yds. of reinforced concrete paving at Gardner, Mass., under specifications on file in my office.

The right is reserved to reject any or all bids.

F. W. PROCTOR,
Supt. of Street,
Gardner, Mass.

Largest Circulation of Any Technical Paper

Engineering News-Record's circulation—over 30,000 weekly—is the largest of any technical paper printed. It includes among its readers practically every worthwhile contractor, dealer, and manufacturer in the country who is interested in bidding on public works contracts—either local or outside of his immediate vicinity.

For Additional Proposals see pages 393, 60, 61, 62 and 63

U. S. GOVERNMENT

U. S. ENGR. OFFICE, WILMINGTON, DEL.—Sealed proposals will be received here until 11 A.M., standard time, June 30, 1923, and then opened, for constructing and delivering one steel hull for quarter boat. Further information on application.

U. S. ENGINEER OFFICE, WILMINGTON, DEL. Sealed proposals will be received here until 11 a.m., standard time, July 9, 1923, and then opened, for dredging Maurice and Cohansey Rivers, N. J. Further information on application.

U. S. ENGINEER OFFICE, Galveston, Texas. Sealed proposals will be received here until 12 M., July 20, 1923, and then opened, for dredging Houston Ship Channel, Texas. Further information on application.

U. S. ENGINEER OFFICE, P. O. Box 72, Louisville, Ky.—Sealed proposals will be received here until 2 p.m., central time, July 16, 1923, and then opened, for furnishing and delivering six steel dump scows. Further information on application.

U. S. ENGINEER OFFICE, 250 Old Land Office Building, Washington, D. C. Sealed proposals will be received here until 12 m., July 20, 1923, and then opened for the construction of items a, b and c, being intake chamber, cut and cover conduit, and tunnel, respectively, of the water supply conduit for the District of Columbia. Further information on application.

SEALED PROPOSALS will be received at the U. S. Engineer Office, 329 Custom House, New Orleans, La., until 9 a.m., July 19, 1923, and then opened for dredging in the Calcasieu-Sabine section of the Intracoastal Waterway. Further information on application.

U. S. ENGINEERS OFFICE, BALTIMORE, MD.—Sealed proposals will be received here until 1 P.M., Eastern Standard Time, July 31, 1923, and then opened, for dredging in Queenstown Harbor, Md. Further information on application .

PROPOSALS FOR ONE BELT CONVEYOR.—Office, Mississippi River Commission, First and Second District, 1006 McCall Building, Memphis, Tenn.—Sealed proposals will be received here until 11 a.m., July 10, 1923, and then opened, for furnishing and delivering one (1) Belt Conveyor. Further information on application.

UNITED STATES ENGINEER OFFICE, ST. PAUL, MINN.—Sealed Proposals will be received here until 2:00 p.m. July 31, 1923, and then opened, for constructing and delivering a steel derrick boat. Further information on application.

SEALED PROPOSALS FOR CONSTRUCTING, DELIVERING AND ERECTING TWO STEEL OIL TANKS. Office, District Engineer, Mississippi River Dredging District, Post Office Box 1017, Memphis, Tenn. Sealed proposals for constructing, delivering and erecting two steel fuel oil storage tanks at U. S. Dredge Depot, will be received here until 9:30 a.m., July 19, 1923, and then opened. Further information on application.

PROPOSALS FOR FOURTEEN STEEL BARGES.—Office, Mississippi River Commission, First and Second Districts, Room 1006 McCall Bldg., Memphis, Tenn.—Sealed proposals will be received here until 11 a.m., July 18, 1923, and then opened, for furnishing 14 steel barges. Further information on application.

PROPOSALS FOR DERRICK BOAT.—Office, Mississippi River Commission, First and Second Districts, Room 1006 McCall Bldg., Memphis, Tenn.—Sealed proposals will be received here until 11 a.m., July 19, 1923, and then opened, for furnishing one 25-ton steel derrick boat, complete. Further information on application.

U. S. ENGINEER OFFICE, GALVESTON, TEXAS.—Sealed proposals will be received here until 12 m., July 21, 1923, and then opened, for dredging in Texas City Channel, Texas. Further information on application.

POSITIONS VACANT

APPLICATIONS desired from field engineer and from carpenter foreman for opening on large reinforced concrete bridge job in Pennsylvania. Write full details of education, experience, salary expected, references, etc. P-461, Eng. News-Record, Leader-News Bldg., Cleveland, Ohio.

CIVIL ENGINEER competent to survey municipal engineering problems and to write and speak clearly. Valuable association with staff of specialists in civic agency dealing with all phases of municipal government. Salary about $3600. Bureau of Municipal Research, 1417 Sansom Street, Philadelphia.

COMPRESSED AIR—Experienced inspectors wanted on masonry tunnel construction under high air pressure. Apply in person. Passaic Valley Sewerage Commissioners, 24 Branford Place, Newark, N. J.

CONSTRUCTION superintendent wanted to take charge of building large hydro electric development. Must be fully experienced on this class of work. Only high class men need apply. Reply will be considered confidential. P-453, Eng. News-Record, Real Estate Trust Bldg., Philadelphia, Pa.

DEPARTMENTAL manager wanted for company manufacturing steel products for fireproof buildings. Only engineer of excellent organizing and selling qualifications need apply, stating salary expected, experience, etc. P-474, Engineering News-Record, Leader-News Bldg., Cleveland, Ohio.

DRAFTSMAN—Structural steel for railroad office in New York City. Graduate engineer with two to five years' experience on details steel bridges preferred. Give full details with reply as to nationality, age, education, experience and salary wanted. P-332, Eng. News-Record, 10th Ave. at 36th St., New York.

DRAFTSMAN having not less than three years' experience in bridge work at modern fabricating plant. Must be technical college graduate. Applicants please give age, education, full synopsis of experience and salary desired. The Strauss Bascule Bridge Co., 225 N. Michigan Ave., Chicago, Ill.

DRAFTSMAN WANTED preferably mechanical engineer with extensive experience on paper machine design. Reply giving age, education, experience, salary. P-439, Eng. News-Record, 10th Ave. at 36th St., New York.

DRAFTSMAN (Electrical) and designer-draftsman wanted for the Panama Canal—Both should be graduates of technical engineering school with practical experience in drafting room. Electrical draftsman should be experienced in underground cable and duct layouts and records; in laying out electric lighting of buildings and in the application of electric power for general and miscellaneous industrial purposes. Designer-draftsman must be qualified for service in laying out reserve generating station, remodeling transformer substation and incidental drafting. Applicants must be American citizens (final papers) under 45 years, in good health. Free steamship transportation from New York or New Orleans, salary beginning date of sailing. No civil service examination required. For further particulars write "Chief of Office, The Panama Canal, Washington, D. C." stating minimum salary would consider.

DRAFTSMAN wanted; experienced in structural and mechanical design in connection with industrial plants, experience in cement industry, desirable but not essential. In replying, give age, experience, salary expected. P-445, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

DRAFTSMEN—Structural steel draftsmen for factory and office buildings, coal bins, etc., must have at least three years detailing experience on this class of work, and good record and references. State education, salary expected and date able to report. Bridge Dept., Canadian Allis-Chalmers, Ltd., Toronto. Permanent positions to satisfactory men.

DRAFTSMEN experienced in detailing and checking structural steel work. State age, education, experience and salary expected. Lakeside Bridge & Steel Co., North Milwaukee, Wis.

POSITIONS VACANT

DRAFTSMAN wanted. Young man with experience on structural steel work detailing and estimating. Good opportunity for a varied experience on all classes and types of steel work. Apply by letter stating experience and salary desired. Bergen Point Iron Works, Bayonne, N. J.

ENGINEERING DRAFTSMAN wanted; 10 positions in middle west open to men experienced in power plant design. Experience in the following, necessary; piping, power equipment, electrical and structural layout—good wages and good working conditions. Write qualifications and for appointment to P-437, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

ENGINEER-FOREMAN: The construction department of a public utility in Eastern Pennsylvania has an opening for an engineer thoroughly experienced on underground distributing systems who is capable of handling field engineering and directing construction. Give age, education, details of experience, references, salary required and enclose small photograph with first letter. P-475, Eng. News-Record, Real Estate Trust Bldg., Philadelphia, Pa.

EXPERIENCED structural detailers wanted; single men preferred; application should give telegraphic address, state experience and accompany sample drawing of work, state salary desired, address Box 654, Havana, Cuba.

EXPERIENCED structural steel fabricating shop foreman wanted for layout, punching, fitting, and riveting departments. Good chance for advancement. Experienced men only need apply. State experience and references. P-463, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

GENERAL superintendent of construction industrial plant. Must be capable of handling all details of reinforced concrete and structural steel. Located in Louisiana. P-466, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

WANTED

Steel Mill Draftsmen

State experience and salary expected in first letter or apply personally at

JONES & LAUGHLIN STEEL CORP.
Aliquippa Works, Woodlawn, Pa.

Here is an opportunity for a man who wishes to come to, or return to, Minnesota.

We have an opening for one experienced structural steel shop detail checker who would also be a squad boss. He should be familiar with steel and iron stairways. The man who qualifies would be certain of a permanent position. Men without the required experience should not apply. Write, stating age, experience and salary expected, to Mr. Goetz, care of St. Paul Foundry Company, St. Paul, Minnesota.

POSITIONS VACANT

OPERATOR wanted for gravity swing clamshell dredge for work on the Hudson River. State salary and reference in first letter. Thomas Smee, Box 182, Tottenville, Staten Island, N. Y.

OPERATOR wanted for Keystone Excavator in North Bennington, Vermont, 3 months' work. Address at once to Long & Montagna, North Bennington, Vt.

OPERATOR wanted for small tunnel shovel; blacksmith for drill steel with Leyner Sharpener experience; also Tunnel Muck foreman, mechanics, pipefitters, riggers and handy men. Apply in person on job at Readsboro, Vermont or at New York Office, 52 Vanderbilt Ave., Mason & Hanger Co.

REINFORCED concrete designer and detailer on building work; unmarried technical graduate preferred; two to four years' experience; state age, experience, and salary expected; location, Middle West. P-426, Eng. News-Record, 10th Ave. at 36th St., New York.

STEAM shovel operator wanted for quarry work, location New Jersey; competent man used to handling rock; permanent position for the right party; in replying state age, married or single, salary expected and whether able to furnish references. P-479, Eng. News-Record, 10th Ave. at 36th St., New York.

STEEL freight car draftsmen wanted particularly detailers and a few checkers. Apply to Steel Car Engineer, Bethlehem Steel Co., Bethlehem, Pa.

STRUCTURAL draftsmen and detailers for work on subway construction in New York City; four to nine months' employment, with probable permanency; entrance salary $1,801 per annum, with opportunity for advancement; open to citizens with two years' experience or one year after technical graduation. Reply Chief Clerk, Transit Commission, 49 Lafayette St., New York City.

STRUCTURAL engineers wanted for designing structural steel factory and mill buildings; also for designing reinforced concrete buildings; state experience in full detail and salary expected. P-165, Eng. News-Record, Leader-News Bldg., Cleveland, Ohio.

STRUCTURAL steel detailers for building work. Apply, stating particulars. The Berlin Construction Co., Inc., Berlin, Conn.

STRUCTURAL draftsman who can layout and direct detailing of structural steel for buildings. State age, education, experience, nationality, least salary to start, and how soon available. The James H. Tower Iron Works, Providence, R. I.

SUPERINTENDENT of quarrying, crushing and screening plant, thoroughly experienced handling large single operation including steam shovels. P-462, Eng. News-Record, Leader-News Bldg., Cleveland, Ohio.

THREE chiefs of party for railway preliminary location in heavy mountain country, eastern part of United States. Applicant must have sufficient experience to well qualify him to fill position and his service record must be supported by recommendations from prominent engineers under whom he has worked. None other need apply. P-468, Engineering News-Record, Real Estate Trust Bldg., Philadelphia, Pa.

WANTED civil engineer to act as chief of party on river survey. Salary $185 per month and expenses in the field. Address P. O. Box 900, Nashville, Tenn.

POSITIONS VACANT

YOUNG man wanted who is looking for a future; chance for the right man to learn the quarry, and crushing business thoroughly; college man or machinist preferred; good salary to start; plant located in New Jersey. P-467, Eng. News-Record, 10th Ave. at 36th St., New York.

EMPLOYMENT AGENCIES

EXECUTIVES, engineers, sales engineers and draftsmen wanted. We have a constant flow of inquiries for experienced and qualified men from all sections of the country. Write fully; no advance charges. H. H. Harrison & Co., Confidential Employment Service, 19 S. La Salle St., Chicago.

APPLICATION FORMS

FIRST impressions are important. Snappy, business-like applications for positions help greatly. Dollar brings prize-winner model form. Specify sales, engineering, clerical. Application Service Co., 766 W. Market St., York, Pa.

POSITIONS WANTED

Civil Engineers

ASSISTANT Professor in large Western University desires position in Civil Engineering Department ... Eastern School. Seven years' teaching experience. PW-366, Engineering News-Record, Old Colony Bldg., Chicago, Ill.

CIVIL engineer, competent and responsible, graduate of M.I.T., with four years' experience bridge, paving and building construction, desires connection with reliable architectural, engineering or contracting firm, with opportunity for a future; employed at present as inspecting and testing engineer on $5,000,000 building project; married; references. PW-416, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

CIVIL ENGINEER—College graduate, 35, desires responsible permanent position in office, field or preferably with industrial concern. Fifteen years' experience, heavy construction, reinforced concrete, dams, bridges, sewers, sewerage disposal, water works, water filtration, estimating, steel erection and design and highways. In charge large contracts as superintendent and engineer. Can furnish A-1 references. PW-444, Eng. News-Record, 10th Ave. at 36th St., New York.

CIVIL engineer 29 years of age, with seven years' experience in highways and pavements design and construction, water works and sewerage design and construction and general municipal engineering, desires connection with Construction Company or Municipality in Central Western or Southern states. Thoroughly familiar with Commission-Manager form of government. Available on one month's notice. PW-419, Eng. News-Record, 10th Ave. at 36th St., New York.

CIVIL engineer, 34, Cornell man, associate member American Society Civil Engineers, energetic, wants position of responsibility with future; especially experienced foundations and structural steel construction; some experience roads, sewers, and small water supplies; understands elements cost keeping and analysis, contract law, purchasing and following up of materials, office forms and reports; available short notice, location immaterial. PW-435, Eng. News-Record, 10th Ave. and 36th St., New York.

HIGHER ENGINEERING (*By Mail*)

Thousands of technical graduates are finding it difficult to get their **EXPERIENCE**, and losing valuable opportunities to secure employment. WILSON COURSES give you *practice work* and turn you into an *experienced* man. No re-hash of college work; no time lost in elementary work; our methods are endorsed by the profession; all discriminating engineers know what a Wilson course will do. Literature is **FREE**.

Write TODAY for information about our work.

Structural Steel Designing
Reinforced Concrete Engineering
Concrete Drafting and Estimating
BRIDGES: Steel and Concrete

Required to enroll; technical education, High School Maths, or their equivalent.

WILSON ENGINEERING CORPORATION
10 Broadway, Hanover, Mass.

Several desirable positions open for Instructors, Assistant Professors and Professors in Engineering Subjects.

For particulars, address Educational Department, The Engineering Agency, Inc., 53 W. Jackson Blvd., Chicago, Illinois. There is no advance fee of any kind. Our thirty-first successful year.

INTERSTATE SERVICE

For the successful placement of **Designers, Draftsmen, Estimators, Engineers, Salesmen** and **Executives**, with leading employers in Ohio and surrounding territory. No charge until satisfactorily placed.

INTERSTATE BUSINESS EXCHANGE
658 Rose Bldg., Cleveland, Ohio
Established 1906

POSITIONS WANTED

CIVIL ENGINEER, graduate, age 31, married; 9 years' experience same company as draftsman and field engineer in responsible charge of work on construction of by product coke oven plants, including tar and benzol plants and two years' coal and ore mining desires to make permanent change. Available on notice. PW-438, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

CIVIL engineer; graduate of leading mid-west University, age 28, 5 years' experience with general contractor, field and office, last three years as estimator and purchaser, can take charge of construction cost keeping, desires position with growing construction company looking for results. Available on short notice. PW-470, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

CIVIL engineer, graduate, age 34, 8 years' experience in construction of dams, canals, wharves, roads, retaining walls, bridges, railroads, buildings, sewer and water system; 1½ years on surveys of properties topographic and hydrographic; 1 year draughting, structural concrete topographic. Salary $250. Available now. PW-478, Eng. News-Record, 10th Ave. at 36th St., New York.

CIVIL engineer, degree, 34, married, desires permanent position. Nine years' railroad and municipal experience. Salary $24. Personal interview in New York state. Teaching considered. Available now. PW-481, Eng. News-Record, 10th Ave. at 36th St., New York.

CIVIL and hydraulic engineer, B.S., 1907, C.E., 1912, Assoc. M. Am. Soc. C. E., age 39, married. Experienced in irrigation reconnoisance to operation; especially in stream-flow measurements and runoff data. G. H. Ellis, U. S. G. S., Helena, Montana.

TRANSITMAN, age 23; 5 years' experience on sewer, water works and road construction wishes position on same. Location immaterial, available immediately. Minimum salary $160 per month. PW-483, Eng. News-Record, 10th Ave. at 36th St., New York.

Drafting and Designing

LADY, experienced in drafting room, desires position. Location anywhere; salary moderate. Address PW-459, Engineering News-Record, Old Colony Bldg., Chicago, Ill.

STRUCTURAL draftsman, American, 22, desires outside work with contractor or construction Co. Location immaterial. PW-471, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

STRUCTURAL draftsman designer. A-1 detailer and checker. Long experience on all kinds of steel structures. First class references. PW-455, Eng. News-Record, 10th Ave. at 36th St., New York.

Bridge & Structural

BRIDGE engineer of important railroad company wishes to change location. PW-417, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

BRIDGES and building, 10 years' experience direct supervision bridge and building construction, design, estimates and appraisal. Experience involved construction of deep foundations under heavy traffic, building of derricks, derrick cars, pile drivers, timber trestles, deep turbine foundations including installation of turbines, machine foundations, steel and concrete bridges, retaining walls and timber and brick power house and shop buildings. Age 35, married assoc. mem. Amer. Soc. Civil Engineers, American Railway Bridge and Building Association. Salary $4,000. PW-482, Eng. News-Record, Leader-News Bldg., Cleveland, Ohio.

STRUCTURAL and ornamental iron; 20 years' experience, engineer, designer, estimator, shop drawings. Capable to take charge and push jobs to completion. PW-452, Eng. News-Record, 10th Ave. at 36th St., New York.

STRUCTURAL steel engineer, technical graduate, 17 years' experience with steel fabricators, contractors, and architects; detailing, estimating, designing, contracting. Qualified for positions as chief engineer medium-sized fabricating plant, or assistant chief engineer, contracting engineer, or engineer with fabricators, contractors, or architects. Competent, hard working, A1 man. PW-469, Eng. News-Record, Leader-News Building, Cleveland, Ohio.

POSITIONS WANTED

STRUCTURAL engineer; American Protestant, 29, married, college. Seven years' experience structural estimating, design, details, measurement, surveys. Would like permanent position with consulting engineer or general contractor, with chance to generalize. Prefer New England district. PW-465, Eng. News-Record, 10th Ave. at 36th St., New York.

Estimators

ESTIMATOR, chief. Graduate C. E. Pricing all types of buildings and general construction, including sub trades. Also construction, costs and purchasing. PW-473, Eng. News-Record, 10th Ave. at 36th St., New York.

EXPERT estimator who can make neat, accurate and reliable estimates for all classes of building construction seeks connection with builder or construction firm. Age, 42. Active, good appearance and selling ability, backed up with 12 years experience as estimator and chief estimator for prominent New England builders and 8 years service as architectural draftsman for reputable architects. Available July 1st for New England territory only. PW-456, Eng. News-Record, 10th Ave. at 36th St., New York.

Surveying

HIGH school graduate with knowledge of trigonometry and surveying desires position with engineering or surveying firm. New York or vicinity. PW-495, Eng. News-Record, 10th Ave. at 36th St., New York.

INSTRUMENTMAN wants permanent position. Married, 30, three years' experience road work and general surveying. PW-905, 10th Ave. at 36th St., New York.

TRANSIT-MAN wants permanent position. Age, 27. Five years general surveying, drafting, and foreman on small construction jobs. Have a fair knowledge of hydraulic work and foundations. Have handled various kinds of labor. Can get results. PW-457, Eng. News-Record, Real Estate Trust Bldg., Philadelphia, Pa.

Superintendents

BUILDING construction superintendent accustomed to handling large operations profitably open for a position with contractor or architectural firm. Experience covers all kinds of buildings in various parts of United States. Salary $90 per week. PW-458, Eng. News-Record, 10th Ave. at 36th St., New York.

ENGINEER and superintendent, age 38, married, C. E. graduate, 15 years' responsible charge design and construction, reinforced concrete foundations, buildings, power plants, etc., desires permanent, responsible position with industrial concern or contractor. Location immaterial. PW-364, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

ENGINEER superintendent now employed would connect with good reliable company immediately; has handled big forces and built grain-elevators, paper mills, steel mills, bridges, and power houses; also office and industrial buildings. Age, 40, health excellent. Familiar with working conditions in East, South, West and Middle West, also Canada and Mexico. Can produce results and demands salary according. PW-464, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

Contract Manager, Executive, General Superintendent Estimator

I have filled all the above positions in two large construction companies. Graduate in Civil Engineering, 34 years of age, married. I know the building construction business from 14 years work in it, in all capacities. Employed, and a director in the firm with which I am connected. Present salary $6000.00. Open for a proposition with construction company or supply house where results count in settling the remuneration.

PW-371, Engineering News-Record,
10th Ave. at 36th St., New York City

POSITIONS WANTED

ENGINEER-SUPERINTENDENT — Extensive highway construction experience, also R.R. Municipal and concrete. Licensed. PW-485, Eng. News-Record, 10th Ave. at 36th St., New York.

SUPERINTENDENT of construction, 25 years' practical experience all kinds of buildings desires position in New Jersey or New York. Responsible and well recommended. PW-490, Eng. News-Record, 10th Ave. at 36th St., New York.

SUPERINTENDENT, 18 years' experience on building construction, foundations, pile driving, coffer dams, bridges, water lines, all classes reinforced concrete. PW-480, Eng. News-Record, 10th Ave. at 36th St., New York.

SUPERINTENDENT construction, thoroughly experienced; handle any size job in hydro-electric plants, dams, heavy foundations, pulp and paper mills, reinforced concrete, waterworks; understands camps; references. PW-415, Eng. News-Record, 10th Ave. at 36th St., New York.

SUPERINTENDENT of construction, broad experience on industrial and building construction, filtration plants, dock work, etc. First class organizer over fourteen years in charge of important work. Available immediately. PW-55, Eng. News-Record, 10th Ave. at 36th St., New York.

SUPERINTENDENT. Building construction, all types. 20 years' experience. A-1 man. Entire charge start to completion. Location immaterial. Open for assignment July 1st. R. S., P. O. Box 2002, Paterson, N. J.

SUPERINTENDENT, general foreman. State road builder, broad experience, A-1 man, all types of macadam, concrete, brick and paving, available short notice anywhere. PW-430, Eng. News-Record, 10th Ave. at 36th St., New York.

Miscellaneous

CONSTRUCTION and designing engineer, railroads, coal and ash handling, docks, general structures, power plants, fine experience. Would like field and design, or field only. PW-487, Eng. News-Record, 10th Ave. at 36th St., New York.

ENGINEERING student wants position with Civil Engineer in middle west or western United States; 6 months college; married. Salary secondary. PW-451, Eng. News-Record, Old Colony Bldg., Chicago, Illinois.

ENGINEER, 23, with 5½ years' experience, which includes 2 years railroad maintenance of way, also city engineering, highway, sewers and farm surveys, building construction and real estate layout. Neat draftsman and excellent vertical letters. Employed at present. Location in New York City or Northern New Jersey. PW-472, Eng. News-Record, 10th Ave. at 36th St., New York.

GENERAL contractor's engineer; graduate, member A.S.C.E. with over fifteen years' broad experience in West. Quick and accurate in estimating quantities on all classes of work such as buildings, foundations, dams, pipe lines, bridges, docks, etc., experienced in designing same and cost keeping. Practically finished present work. PW-434, Eng. News-Record, Rialto Bldg., San Francisco, Cal.

HIGHWAY engineer, 32, available for employment. Seven years' experience including surveys, preparation of plans and estimates, and construction of macadam and concrete roads. PW-440, Eng. News-Record, 10th Ave. at 36th St., New York.

PAVING INSPECTOR would like to hear from contractor, state or municipal authority requiring experienced man, well-versed in street, road and plant inspection. All types of pavements. PW-489, Eng. News-Record, Old Colony Bldg. Chicago, Ill.

POSITION in legal department of large firm desired by lawyer, with executive experience. John W. Weis, 6218 Greenwood Ave., Chicago, Ill.

SECRETARY (young woman) capable handling office. Six years' experience, three commercial and three railroad, ditch and levee construction. Go anywhere but prefer North. PW-484, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

POSITIONS WANTED

RESEARCH engineer, graduate European university, tried mathematician, four years' varied industrial development experience, wants position assisting in difficult industrial research, requiring capacity for quickly absorbing and digesting widely varied scientific data, practical sense and ability for securing co-operation. Proofs of original solutions, four languages. Starting conditions not over-important, if possibilities are promising. PW-486, Engineering News-Record, Leader-News, Building, Cleveland, Ohio.

YOUNG man desires work in field office of an engineering construction company during summer. Will return to school in fall. PW-454, Eng. News-Record, 10th Ave. at 36th St., New York.

WORK WANTED

Designing, Detailing Checking

For structural steel and reinforced concrete. Industrial, mechanical, structural engineering. Shop drawings. Central States Engineering Company, 28 East Jackson Boulevard, Chicago, Ill.

Structural Steel Designing

Detailing and checking, for owners, architects, engineers, and fabricators. Reasonable prices. Experienced Engineers. WW-393, Eng. News-Record, Leader-News Bldg. Cleveland, Ohio.

PART TIME WORK WANTED

CIVIL engineer, who also knows the ropes of the selling game fairly well, and is at least on speaking terms with general business ways can spare part of his time for congenial work that will pay a salary. If you, Mr. Employer, should happen upon this advertisement drop me a line or two. Possibly we could be of use to each other. PTWW-477, Eng. News-Record, 10th Ave. at 36th St., New York.

AGENTS WANTED

Agents for Exclusive Territory

On new patented Electric Trench and Caisson Hoist Unit. Being used by leading contractors. Louis Falzer Co., 2117 Tilden St., Chicago, Ill.

SALESMEN WANTED

Construction Equipment Salesman Wanted

Who has specialized in concrete mixers. State age, salary expected and past experience in detail. SW-397, Eng. News-Record, 10th Ave. at 36th St., New York.

BUSINESS OPPORTUNITIES

Partner Wanted

To purchase half interest in small dredging plant. Address BO-450, Eng. News-Record, New York, 10th Ave. at 36th St.

Will Sell All or Half Interest

Of refinery and steel construction company in Texas. Profits average about $10,000 per year. Present owner unable to give sufficient time to business. $5,000 cash will handle. BO-476, Eng. News-Record, Old Colony Bldg., Chicago, Ill.

BUSINESS OPPORTUNITIES

Established Engineering Business

And concrete products plant in central Illinois for sale. Separate, or will make wonderful combination. BO-491, Engineering News-Record, Old Colony Bldg., Chicago, Ill.

Established Sales-Agency For Sale

Handling structural steel, reinforcing, and a number of specialties. Location Middle West. A real opportunity for a sales-engineer to start business for a small investment. BO-492, Eng. News-Record, Leader-News Bldg., Cleveland, Ohio.

PATENT ATTORNEY

PATENTS—Send for form "Evidence of Conception" to be signed and witnessed. Form fee schedule, information, free. Lancaster and Allwine, 450 Ouray Bldg., Washington, D. C.

FOR SALE

Dumpy Level

W. & L. E. Gurley makers. J. L. Gray, Box 74, Louisa, Ky.

WANTED

Used Engineer Transit

Having vertical arc. Describe fully including instrument number and lowest possible cash price. Buyer in New York. W-460, Eng. News-Record, 10th Ave. at 36th St., New York.

CALIFORNIA!

INDUSTRIAL SITES aroung San Francisco Bay are handled by our industrial department, in charge of an experienced engineer. Information freely given. (Continuously in business 23 years).

F. F. PORTER, Porter Bldg., Oakland, Calif.

FERRY

FOR SALE

In absolutely good running order. 14 feet wide, 40 feet long, including two aprons. Constructed by the Minneapolis Steel Machinery Co. Iron sides, two iron beams, 350 feet cable.

G. SCHWYZER
410 Donaldson Bldg., Minneapolis, Minn.

For Sale or Lease; A bargain

QUARRY AND CRUSHING PLANT

on railroad. Business thoroughly established. An exceptional proposition.

FS-431, Engineering News-Record
Real Estate Trust Bldg., Phila., Pa.

AGENTS WANTED

MIXERS-PAVERS SAW RIGS

See display ad in June 7th Issue

Oshkosh Mfg Co., Oshkosh, Wis.

We Dig and Refill Trenches

for water, sewer, gas, conduits and drains.

Pipe laid by contract and installation of water systems.

Trench Machines and Backfillers For Rent

W. G. Fritz Co., Inc., *Contractors*
258 Valley Road, West Orange, N. J.

Second-Hand Transits and Levels

Guaranteed in Good Order and Adjustment.

Write for New Bargain List

WILLIAMS, BROWN & EARLE, INC.
918 Chestnut St., Philadelphia, Pa.
Department D

NEW AND USED SURVEYING INSTRUMENTS AT FACTORY PRICES

Satisfaction guaranteed or money refunded. Write for complete list and catalogue of our high grade instruments and supplies for civil engineers, surveyors, mining, builders, contractors, etc.; 40 years' experience in repairing instruments of all makes at reasonable prices. Prompt service.

WISSLER INSTRUMENT CO.
607 N. Broadway, St. Louis, Mo.

FOR SALE

Used Transits and Levels

BUFF, 46 Dey St., New York.

FOR SALE

Oil Engine and Dynamo

Sealed bids will be received at the office of the County Clerk in the Court House in Galesburg, Illinois, up to 10 o'clock a.m., August 25th, 1923, for the following:

One Fairbanks-Morse Oil Engine, Type 25-H. P. 325 R. P. M. with 40 ft.-7 inch belt: 50 gal. Oil Tank, also two cooling tanks, capacity of each tank 400 gallons, with centrifugal pump size one inch. All in good shape. Factory No. 164985.

One Fairbanks-Morse Direct Current Dynamo, K. W. 15, Volts 125, Amp. 120, Type C. P. adjusted to 1,300 R. P. M. Volts 125 at full load also 125 at no load. Belt driven 7-inch pulley. No. 21368. In good shape.

Bids must be enclosed in a sealed envelope with the name of the bidder written or printed thereon and addressed to:

GEO. A. LARSON,
County Clerk.
Galesburg, Illinois.

EXCAVATION

Steam Shovels for rent with crews or work taken by contract.

Dinkeys and cars or teams furnished.

H. C. AMBLER
3717 Old York Road, Philadelphia, Pa.

TARPAULINS AND Waterproof Canvas Covers

All Sizes—All Weights at Hand

DASH MFG. CO., INC.
56 Suffolk St., New York City.

WANTED

LOCOMOTIVE CRANE

1—Standard Gauge, 25 tons capacity.

SADDLE TANK LOCOMOTIVES

2—Standard Gauge, 25-ton engine will do. Cannot use over 40.

W-433, Engineering News-Record
Leader News Bldg., Cleveland, Ohio.

WANTED

Stiff Leg Derrick

15 tons capacity, 60-ft. boom.

Merritt Chapman & Scott Corporation
17 Battery Place, New York City

WANTED

Stone Crusher—Dump Bodies

250 yd. capacity Stone Crusher.
3 Dump Bodies for Ford Dump Truck.

F. H. WELLS, Savannah, N. Y.

WANTED DRAGLINE

60-ft. boom, 1½-yd. bucket, which can carry a 2-yd. light bucket and maintain the builders load limit. Must be fitted with Diesel or Semi-Diesel Oil Engine.

THE H. C. DARNELL MACHINERY CO.
15th and Elmwood, Kansas City, Mo.

AUCTION

Sale of

NAVY SURPLUS

by

PUBLIC AUCTION

At Navy Yard, New York, N. Y.

on JULY 10th and 11th, 1923

AUCTION

There is given below a general list showing the character of material in each sale referred to above. Catalogs of sale covering all details regarding the sales can be obtained from the Central Sales Office or the Auctioneers mentioned.

Catalog No. 504-A

Sale of July 10, 1923, Steel and Metals at Navy Yard, New York, N. Y. under the auspices of Alfred Freeman & Company, 149 Grand Street, New York City:—

Brass and Copper, Building Materials, Contractor's Supplies, Iron and Steel and other Metals. Scrap Accumulations.

Catalog No. 503-A

Sale of Surplus materials at Navy Yard, New York under the auspices of Smith & Jaffe, 68 W. 45th St., New York City, July 11, 1923:—

Fire Brick, Brass and Copper, Iron and Steel and other Metals, Gauges, Pipe Fitting, Plumbing Supplies, Marine Equip., Wire and Cables, Scrap Accumulation, Tools, Hardware and 12 Electric Railway Cars with 10 Trailers.

CENTRAL SALES OFFICE, NAVY YARD, WASHINGTON, D. C.

WANTED

Bucyrus Shovel

1—70-C, in first-class condition, A.S.M.E. boiler.

Dinkeys

3—36-in. gauge, either 18 or 20 tons, A.S.M.E. boiler.

Western Steel Beam Cars

40—4-yd., 36-in. gauge.

Cannot pay fancy prices. Dealers save postage

W-432, Engineering News-Record
Leader News Bldg. Cleveland, Ohio.

Ready for Delivery Now

4,000,000 FEET OF LUMBER

Fir and Yellow Pine.
Sizes as follows:

358 pcs., 12x12, 20 ft. long.
134 pcs., 12x12, 30 ft. long.
18 pcs., 12x12, 10 ft. long.
1,107 pcs., 6x6, 10 to 12 ft. long.
3,060 pcs., 3x12, 20 ft. long.
953 pcs., 4x10, 20 ft. long.
2,088 pcs., 2x8, 20 ft. long.
212 pcs., 6x10, 9 ft. long.
237,800 sq. ft. 2x8 floor beams, 9 to 18 ft. long.
200 windows, 2 ft. 10 in. wide by 5 ft. 2 in. high, complete.
132,600 sq. ft. 6-in. sheeting.
13,800 sq. ft. novelty siding.
20—8x8 ft. rolling steel doors.

Above lumber from Navy Warehouses, four years old, free from nails, and immediate delivery by rail or water. Two million feet same sizes, future delivery.

Kirsch Demolishing Co.
35th St. and 2nd Ave., So. Brooklyn, N. Y.

FOR SALE

1—No. 3793, Size 61 (¾-yd.) Ransome Concrete Mixer with side loader and hoist for hoisting bucket, 25-hp., either 2 or 3-ph., 60-cy., 220-v. Motor, hoisting bucket with hopper for tower on truck with steel frame, lately overhauled $1200
1—No. 520 (¾-yd.) Smith Chicago Mixer with 15-hp., 3-ph., A.C. Motor and side loader, rebuilt 600
1—No. 10 (1 bag) Chicago Con. Mixer on skids with pulley 60
1—20-cu.ft. Ransome Concrete Hopper 50
1—Fairbanks-Morse, 8-hp. Gasoline Engine, with pulley and clutch 60
1—No. 105 Standard Concrete Mixer on truck with Novo Engine 100
1—2¾x10 Deep Well Pump Head, with 2½-hp. Novo Engine 90

FRANK N. GOBLE, INC.
49 Brookfield St., White Plains, N. Y.

FOR SALE—FOR RENT

3—Austin Cube Pavers, Boilers, Engines, Boom, Bucket, Batch Meter, Caterpillars.
1—Potter Trenching Machine.
1—10-ton Kelly Roller.
1—5-ton Iroquois Roller.

Empire Engineering & Equipment Co.
Office and Yard: Cor. W. Gen. Robinson and Dasher St., Pittsburgh, Pa.

WANTED

STEEL SHEET PILING

100 Pcs. 40 to 50 ft. long.
200 Pcs 20 to 30 ft. long.
Suitable condition for redriving.

W-399, Engineering News-Record
1570 Old Colony Bldg., Chicago, Ill.

Steam Shovels For Rent

Type A1 Thew, located Jersey City, N. J.

Immediate Shipment

JAMES S. BRADEN
30 Church St., New York, N. Y.

FOR SALE

STEEL SHEET PILING

120 pcs., 14-in. Lack. Arch Web, 22 to 24 ft. long.
15 pcs., 14-in. Lack. Arch Web, 11 to 18 ft. long.
8 pcs., 14-in. Lack. Straight Web, 22 ft. 6 in. long.
Good Redriving Condition. Price $37.50 per ton 2000 lb. for entire lot F.O.B. cars, Salem, N. J.

J. M. HYNES
Lock Box 242, Salem, N. J.

TO RENT

Erie Steam Shovel

High Lift Type "B". Caterpillar Traction.

L. V. MORRIS,
Box 106, Locust Valley, N. Y.

We will sell at

PUBLIC AUCTION

Absolute *By* **CHAS. KRISER,** *Auctioneer* ***Unreserved***

By order of, and for the account of

NEWPORT SHIPBUILDING COMPANY

Wilmington, North Carolina (Builders of Concrete Ships)

All of the WOODWORKING MACHINERY, MACHINE TOOLS, CONTRACTORS and YARD EQUIPMENT, STEEL and SUPPLIES at the shipyard, Wilmington, N. C.

Thursday, July 12, 1923

Commencing 10:30 A. M. SHARP!! (Eastern Standard Time)

VALUATION $350,000.00

Everything will be sold without limit or reserve!!

SALE INCLUDES:

Chain Mortisers, Inside and Outside Moulders, Surfacers, Tenoners, Band Saws, Resaws, Bevel Band Saw, Boring Machines, Belt Sander, Saw Tables, Dado Saws, Scroll Saws, Joiners, Lathes, Shapers, Grinders, Pipe Machines up to 10 in., Pipe Expander, Bolt Cutter, Radial Drills, Drill Presses, Hack Saws, Vises, Forges, Benches, Concrete Mixers, Cement Guns, Engines, Air Compressors, Hoists, 50-ton capacity Steel Stiff Leg Derrick, Boilers, 40-ton Locomotive and Tender, Standard Gauge Flat Cars, 100 tons Steel Reinforcing Bars, tons of New Fittings, Brass, Malleable and Cast Iron, tons of Scrap, Rope, Chain Hoists, Bolts and Nuts, Ship Supplies, Air Tools, Acetylene Torches, 50 Electric Motors and Generators up to 75 H.P., Office Furniture and Hundreds of other items.

This equipment is all of modern type and in excellent condition.
Plant open for inspection from June 28th to the day of the sale.

ONLY ONE **advertisement will appear in this paper—SO SEND IMMEDIATELY FOR** ***COMPLETE AUCTION CATALOGUE.***

Industrial Plants Corporation

'Phone Rector 2270

25 Church St., New York, N. Y.

USED EQUIPMENT

AND NEW, OFFERED FOR RE-SALE

Space for these advertisements is sold by the advertising inch—30 inches to a page. The price per inch is based on total space used—multiply ad space by number of insertions.

RATE PER INCH:
1 to 3 inches.....$5.00 an inch
4 to 7 inches..... 4.80 an inch
8 to 14 inches..... 4.70 an inch

An inch is measured vertically on one column—three columns to a page. Any space may be used measured by the even inch in height by 1, 2, or 3 columns in width.

RATES FOR LARGER SPACES, OR SPACE ON A YEARLY BASIS, FURNISHED ON REQUEST

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Construction WE BUY, SELL AND RENT *Equipment*

AIR COMPRESSORS

1—Ingersoll-Rand, 10x10, Belt drive.
1—Chicago, 70 ft., Gas. Power, mounted with Tank, mounted on Trucks.
1—Chicago, 150 ft., Gas. Power.
2—Westinghouse, Compound, 150 ft.

CRANES

1—P. & H. 205, semi-caterpillar.
1—Overland Traction Wheels, steam power.
1—20-ton Ohio, std. gauge.

HOISTS

1—American, 10 x 12, D.C., D.D., skel.
5—7 x 10, DC, DD, various makes.
1—6 x 8, DC, DD skel. Lambert.
1—Thomas DD with 50-hp., A.C. Motor.
1—Thomas DD with 75-hp., A.C. Motor.
1—Lambert, 8¼ x 10, DD, butt strapped boiler.
1—American, 8¼ x 10, DD, butt strapped boiler.
1—Thomas Double Drum with 100-hp., D.C. Motor.

LOCOMOTIVES

2—Std. Gauge Baldwin and American, 50 ton.
1—Standard Gauge Baldwin, 30 ton, rebuilt.
7—24-in. Gauge Plymouth & Whitcomb, gas.
5—36-in. Gauge Davenport, Porter & Vulcan.
3—6-ton, 24-in. Gauge Geared Whitcomb.
1—Std. Ga. 10 x 16 Lima.

DERRICKS

3—Steel Stiff-Leg, 60 to 100-ft. booms.
1—Wood Stiff-Leg Derrick, bucket operating.
6—Steel Guy, 100-ft. masts, 15 to 25 tons.
8—Steel Guy, 110-ft. masts, 25 to 40 tons.
2—Steel Stiff-Legs, 110-ft. booms, 20 tons.
1—All-Steel Derrick Car, capacity 25 tons.

ROAD EQUIPMENT

2—Lakewood Finishing Machines, 16 & 18 ft.
60—Batch Boxes, 29 ft.
5—Rollers, 8 to 10 ton, tandem and 3 wheel, steam and gasoline power.
6—Pavers, 12E to 21E.

CONCRETE MIXERS

1—21-S Marsh Capron Batch Hopper.
2—7-S Rex Low Charging Mixers.
1—21-S Rex, Steam Power.
1—7-S Boss, Gas. Power, Side Loader.

STEAM SHOVELS

1—Type B, Erie.
4—Traction and Caterpillar, ¾-yd. shovels, Marion, Osgood, Bucyrus and Thew.
2—Bucyrus 70C's; also 70-ton railroad type.
1—Bucyrus 35B on caterpillar.
1—Marion 35 traction wheels.
1—Standard Bucyrus 150-B.

CARS

75—36-in. gauge, 4-yd. Western Dump.
50—24-in. gauge, 1½ yd. steel "V"-shaped.
30—24-in. gauge, Western All-Steel Flat.
30—18-in. gauge, 1-yd. Western.
70—24-in. gauge, 1½-yd. Wood Bodies.

DRAG LINES

1—Monighan 1-T, Walker type.
1—Monighan 2½-T, Walker type.
1—Bucyrus 14-B, on caterpillar.

PILING HAMMERS

1—No. 3 McKiernan-Terry.
1—No. 9 McKiernan-Terry.
1—No. 3 Union. 1—No. 2 Vulcan.

BUCKETS

1—¾-yd. Kiesler Clam Shell Bucket.
1—1-yd. Hayward Clam Shell Bucket.
1—1-yd. Page Dragline Bucket.

MISCELLANEOUS

2—50-hp. Locomotive Type Boilers.
1—Erie 6-in. Centrifugal Pump with Engine.
1—Lakewood Steel Tower, 150 ft., with Bucket
1—Insley Steel Tower, 200 ft. with Bucket
1—4-in., belt driven Centrifugal Pump.
2—Steel Stone Skips.
4—Vertical Boilers, ranging from 25 to 40-hp.

The above are only a few of the items we have for sale. Write or wire for our latest stock list.

RENNOLDS EQUIPMENT CO.

711 STANDARD TRUST BLDG.
CHICAGO, ILL.

PHONE: RANDOLPH 4184

ECA REBUILT

"WE BUY— REBUILD— SELL OR RENT"

ELECTRIC HOISTS AND DERRICKS FORM HOG ISLAND

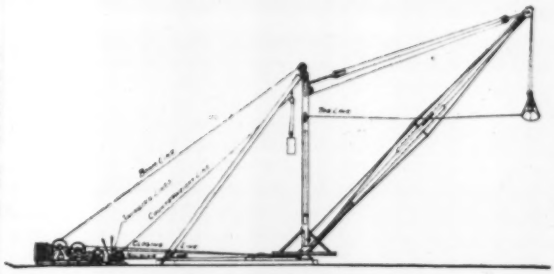
Available For Inspection and Shipment From Our Four Plants

Specifications of Electric Hoists

Large number of American late model hoists. These hoists have 2 drums with attached swinging gear, with 37-hp. Otis A.C., 440-v., 60-cy., 3-ph. electric motor —Complete with controllers and resistance grids—Can be changed to suit customer's current requirements if desired.

Can furnish counterweighted holding drums with these hoists when used for operating bucket.

Also several 55 and 75-hp., Single and Double Drum Hoists with A.C. Motors.



Specifications of Derricks

Large number of practically new American stiff-leg derricks.
Boom, 14x14x80 ft., trussed.
Mast, 16x16x40 ft.
Legs, 14x14x62 ft.
Bull wheel, 16 ft.
For Single Line Work or Arranged for Bucket Operation.
Will sell fittings only if desired.
Also have large stock of lighter stiff-leg derricks, several steel stiff-legs, 20, 30 and 50 ton.

Guy Derricks

A number of both wood and steel guy derricks, 5, 10 and 25-ton capacity.

ALL THE EQUIPMENT LISTED BELOW HAS BEEN REBUILT AND MAY BE INSPECTED IN ONE OF OUR OWN WAREHOUSES

AIR COMPRESSORS

1—Sullivan Class W.G.3, belt driven cylinder, 10x12.

2—10½-in. Type C Westinghouse Steam Compound Air Compressors. Capacity 150 cu. ft. at 100 lbs. Requires 25 hp. Boiler.

1—Bury Class L 8x8 Compressor complete with air receiver with 15 hp., A.C., 220 volt, 60 cycle motor.

1—Schramm No. 30 Gasoline, on trucks with air receiver, cap. 50 cu. ft. per minute.

CONCRETE MIXERS

30—Concrete Mixers, sizes 28S, cap. 1-yd., 21S, cap. ¾-yd.; 14S, cap. ½-yd., and 10S, cap. 1¾-yd. With steam or electric power; with side loaders or batch hoppers. Following makes: Marsh-Capron, Koehring, Milwaukee, Ransome, Smith, Smith-Chicago, Rex, Lakewood, Foote, Cube, or Oshkosh.

45—7S, cap. 1 bag, with low charging platforms, with gasoline engines.

CRANES

1—Byers Auto Crane on traction wheels, with 30-ft. boom, with ½ or ¾-yd. clam shell bucket.

1—15-ton, 8-wheel, O.&S., 40-ft. boom.

1—15-ton Browning locomotive crane on 4-wheel, standard gauge trucks, with 40-ft. boom and bucket operating.

CLAM SHELL BUCKETS

20—Clam Shell Buckets. Sizes ½, ¾, 1, 1½ or 2-yd. All makes.

CRUSHER

1—No. 4 Austin Gyratory crusher.
1—10x20 Climax Jaw Crusher on Trucks.

DIAPHRAGM PUMPS

90—Diaphragm Pumps on trucks, with 3-in., or 4-in. suction, with 3-hp., 2-hp., or 1½-hp. Gasoline engines. Following makes: Atlantic, Bull Dog, C.H.&E., Domestic, Gould, Humphrey, Keystone, Novo, Schramm and Sultan.

30—Hand Diaphragm Pumps, 3-in. and 4-in. suction.

A large assortment of steam pumps, Simplex and Duplex, also several Nys and Pulsometer Pumps, No. 5 and No. 6.
Several hand driven force pumps, 2-in. and 1½-in. suction.

CENTRIFUGAL PUMPS

All sizes from 12-in. suction, 10-in. discharge, down to 2½-in. suction, 2-in. discharge. Belt driven and dir. conn. to steam engines, gas engines and electric motors.

STEAM HOISTS

20—Three-Drum Hoists, with or without boilers. Sizes, 10x12, 9x10, 8¼x10, and 7x10, with separate swingers for derrick work. All makes.

40—Two-Drum Hoists, with or without boilers. Sizes, 10x12, 9x10, 8¼x10, 7x10, 6¼x10, 6x8, and 5x8. Can be equipped with holding drum for bucket work. Several special Cableway Excavator or Drag Scraper Hoists. All makes.

12—Single Drum Hoists 9x10, 6¼x10, 8x8. Lidgerwood, American and Lambert.

6—Swinging Engines.

1—Double Drum Belt Hoist, cap. 6000 lb.

1—Belt Hoist, single drum, 2500 lb. line pull.

1—4¾x6 double cylinder, single drum, reversible with elevator sheave, complete with boiler.

1—8-hp. Byers S. D. Reversible, with boiler and elevator sheave.

ELECTRIC HOISTS

1—O & S. double drum, with 20-hp. Westinghouse, 220 v., 60 cy., 3 ph., with drum controller resistance grids, complete.

RAIL AND TRACK

4—Miles, 24-in. Gauge Portable Track, with steel ties, made up of 20-lb. rail with switches.

GUY DERRICKS

1—Wooden Guy Derrick, mast 60-ft., boom 56-ft., 16x16 timbers—single line.

1—All steel with 90-ft. mast, 80-ft. boom, with all guys, with bull wheel, 10-ton capacity, bucket operating.

ROAD ROLLERS

2—Erie Tandem, 1—8-ton, 1—3-ton.

2—Kelly-Springfield, 10-ton, 3-wheel; 1—gas, 1—steam.

1—Iroquis, 5-ton, steam Tandem.

3—10-ton, 3-wheel. 2—Buffalo-Pitts, steam. 1—Austin, gas.

STEAM SHOVELS

1—Bucyrus, 70-ton, on MCB std. gauge trucks, with 2½-yd. dipper.

4—Keystone Excavators. 3—No. 3, 1—No. 4.

1—Marion No. 28 Traction Wheel, ¾-yd. bucket.

1—Type A1 Thew on traction wheels with ⅞-yd. dipper.

2—Type O Thew on traction wheels with ⅝-yd. dipper.

STEAM HAMMERS

7—McKiernan & Terry. 6—No. 9B. 1—No. 6.

2—Vulcan, 1—No. 2 and 1—No. 1. Several drop hammers.

LOCOMOTIVES

1—Shay Geared, 36-gauge, 6x10, 13-ton.

2—24-in. gauge steam Saddle Tanks, 1—Davenport 7½-ton. 1—Kopple 6½-ton.

Write for latest Stock List just off the press.

Equipment Corporation of America

Manufacturers and Rebuilders of Contractors' Equipment

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1455 Lumber Exchange Bldg.
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PITTSBURGH, PA.
655 Empire Bldg.
Phone, Smithfield 1502

FOR SALE OR RENT

STEAM SHOVELS

1—14B Bucyrus Traction Shovel, Shop No. 3338 new in 1920. 2/3-yd. dipper.
1—Model 36 Marion, full revolving traction, Shop No. 3304, new 1½-yd. dipper.
4—70C Bucyrus. Shop No. 1167, 1426, 1499 and 1608; 2½-yd. dippers.
3—70-ton Bucyrus, Shop Nos. 860, 977, and 1233. 2½-yd. dippers.
1—70-ton Bucyrus. Shop No. 920, equipped with new 70C boom. 2½-yd. dipper.
3—Model 60 Marion, Shop Nos. 1463, 1711 and 2367, 2½-yd. dippers.

STEAM SHOVEL PARTS

3—Booms for 70-ton Bucyrus, length 29 ft.
1—Boom for 70C Bucyrus shovel, composite, length 40 ft.
3—Dippers, Bucyrus, 2½-yd. capacity.
1—Bucyrus Dipper, 3 cu. yd. capacity.
Jack Arms, Dipper Arms and Boom Engines for 70-ton Bucyrus Shovels.
1—Boom for Model 60 Marion Shovel.
2—Dipper Arms for Model 60 Marion.
1—Dipper, 2½ yd., for Model 60 Marion.

DRAGLINE EXCAVATORS

1—Class 14 Bucyrus Dragline; 60-ft. boom, 2-yd. Page Bucket, skids and rollers, or truck wheels.
1—Class 24 Bucyrus Dragline, Shop No. 772; skids and rollers, 100-ft. boom, 3½-yd. Page bucket.
1—Class 24 Bucyrus Dragline, built 1919, 115-ft. boom, 3½-yd. Page bucket, steam operated.

LOCOMOTIVES

1—17 x 24 Davenport, 6-wheeled switcher, new in 1912, weight 47 tons, steam pressure 180 lb.
1—18 x 24 American, 6-wheeled switcher, Brooks No. 2318. Wt. 55 tons on drivers.
1—16 x 22 C. M. & St. P. Ry., Class J-2, 4-wheeled switcher. Weight 32 tons.

LOCOMOTIVES (Continued)

1—standard gauge, 11 x 16 American 4-wheeled saddle tank Locomotive, shop No. 47421, built 1912. Weight 21 tons, steam brakes, automatic couplers.
3—36-in. gauge, 11 x 16 Vulcan dinkies, shop Nos. 1700 to 2200 series. Steel cabs and butt joint boilers. Weight 20 tons.
1—36-in. gauge, 11 x 16 Davenport dinkey. Shop No. 710. Wt. 20 tons.
1—36-in. gauge, 10 x 16 Porter Dinkey. Shop No. 3912. Wt. 18 tons.
1—36-in. gauge, 10 x 16 Vulcan Dinkey. Shop No. 868. Wt. 18 tons.
1—36-in. gauge Baldwin Dinkey, Shop No. 34550; wt. 18 tons.
1—36-in. gauge American Dinkey, Shop No. 46733; wt. 18 tons.

CRANES

1—Type B Erie Traction Crane; 33-ft. boom and ¾-yd. clam shell bucket. Shop No. 838. New in 1920.
1—10-ton Industrial Crane (Shop No. 1989), 4 wheeled, 40-ft. boom.
1—20-ton McMyler, Serial No. 388, built 1912. 8 wheeled; 45-ft. boom, bucket operating drums.
1—25-ton Industrial Crane, 8 wheeled, full M.C.B., bucket handling drums; (Shop No. 3261), 55-ft. boom and 20-ft. ext.
1—30-ton Ohio Crane, new in 1918; 8-wheeled, full M.C.B.; bucket handling; 50-ft. boom; Ohio, Penn., N. Y., Mich. and Mass. Std. boiler.
1—30-ton Ohio Locomotive Crane, 8-wheeled, full M.C.B., bucket handling, 50-ft. boom, with 20-ft. extension. Shop No. 3416. Built 1920. A.S.M.E. boiler.
1—Pintle Type Crane, built by Variety Iron & Steel Works. New in 1919; 48-ft. boom, 15-ton cap. at 18-ft. radius; 7-ft. 10½-in. gauge, 12-ft. wheelbase, self-propelling. Base of boom 17 ft. above track. Bucket-operating drums. Wt. 50 tons. Price, 25% of new.

DUMP CARS

3—16-yd. Western Air Dump Cars.
20—12-yd. Western Air Dump Cars, 19-ft. beds, full M.C.B. steel underframes, box girder doors.
4—12-yd. Western Dump Cars, air brakes and hand dump, 19-ft. beds, steel underframes, box girder doors, full M.C.B., 60,000 lb. capacity trucks.
5—12-yd. Oliver Dump Cars, steel underframes; full M.C.B.
13—8-yd. Western, 36-in. gauge, double truck side Dump Cars; steel draw sills, wood beds.
9—4-yd. Continental, 36-in. Gauge Side Dump Cars, wood beds, steel draw sills.
70—4-yd. Western, 36-in. Gauge, Wood Sill Dump Cars, truss rod doors.
34—4-yd. Continental, 36-in. gauge, wood draw sills, 4 pedestals, truss rod doors.
8—3½-yd. Peteler 36-in. gauge side dump cars, wood sills and wood beds.

SPREADER AND DERRICK CARS

1—Standard Gauge Western Spreader Car.
1—36-in. gauge Western Spreader Car.
1—36-in. gauge Oliver Spreader Car.
1—Std. Gauge Derrick Car.

HOISTING ENGINES

1—7 x 10, D.C., D.D. Lambert Hoisting Engine, with boiler.
1—7 x 10, D.C., D.D. Clyde Hoist with A.S.M.E. boiler.

MISCELLANEOUS

2—80-hp. horiz. Boilers, complete with fittings.
2—1½ yd. Page Dragline Buckets.
6—1½-yd. Western Dump Wagons.
11—Mead-Morrison 1⅝-yd. Clam Shell
1—Industrial Steam Pile Driver Hammer, Serial No. 324.
1—Pair Steel Pile Driver Guides, 42 ft. long, for above hammer.
1—Stable Tent, 30 ft. x 50 ft.

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FOR SALE

7—Dump Scows, 280 to 700 cu. yd. capacity.

1—5 to 7 cu. yd. Clam Shell Dredge.

1—5-yd. Clam Shell Dredge.

1—2½-yd. Dipper Dredge.

3—Flat Deck Scows, 87 to 110 ft. x 30 to 32 ft.

1—Coal Scow with Derrick and Hoisting Engine, 300 tons.

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LOCOMOTIVE CRANE

1—10-ton Industrial, 4-wheel standard gage, 40-ft. boom, ¾-yd. clam shell bucket.
1—12-ton, 8-wheel O. & S., M.C.B., 40-ft. boom, equipped with ¾-yd. clam shell bucket.
1—O. & S. Gasoline traction, 35-ft. boom, ¾-yd. bucket.
1—Erie "B" traction, 36-ft. boom.

SHOVELS

1—Model 61 Marion, 2½-yd. dipper, railroad trucks.
1—70-ton Bucyrus, 2½-yd. dipper, railroad trucks.
1—Type "A" Erie traction, ½-yd. dipper.
1—Model 36 Marion, 32-ft. boom, 22-ft dipper stick, 1-yd. dipper, caterpillar traction.
1—Model 28 Marion combination crane and steam shovel, traction wheels.
1—Late Type "O" Thew, 1921, boom, ¾-yd. dipper. Traction wheels, high lift shipper shaft.
1—Model 18 Osgood, caterpillar traction, high lift, 20-ft. boom, ¾-yd. dipper.
1—Erie "B", caterpillar, high lift, with boom hoist, 20-ft. boom, 18-ft. dipper handle, ¾-yd. dipper. Used 6 months on light work.
1—Browning, Type No. 8, 38-ft. boom, 22-ft. dipper handle, 1-yd. dipper, mounted on 4 wheels, standard gage, with stability wheels on same shaft. Used 2 months.

DRAGLINE

1—Erie caterpillar traction, 40-ft. boom, 1-yd. Page bucket.
1—Austin combination steam shovel and dragline, Model 5, caterpillar traction.
1—Marion Model 251, 115-ft. boom, 3½-yd. bucket.
1—Monighan, 120-ft. boom, 3½-yd. bucket.
1—Monighan T1 (Walker) Gasoline, 50-ft. boom, 1-yd. Page bucket.

HOISTING ENGINES

1—Byers Traveling Derrick, all-steel construction, 14-ft. gage, 3-drum engine independent swinger, 50-ft. boom.
1—10x13, D.C., 3-drum Mundy Hoisting Engine with Boiler.

LOCOMOTIVES

1—Vulcan, 38 ton, saddle tank, std. gage.
1—Vulcan, 21 ton, saddle tank, std. gage.
1—Vulcan, 11 ton, saddle tank, 36-in. gage.

JOHN F. CONNELL CO.

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LOCOMOTIVE CRANES

1—McMyler, 20 ton, 8 wheel, M.C.B., 40-ft. boom, bucket drums.
1—Byers Semi-Caterpillar, 35-ft. boom, ½-yd. Owen bucket.
1—15 to 20-ton Brown Hoist, 50-ft. boom, 1½-yd. bucket.
1—New 12-ton, Type E Orton & Steinbrenner, gasoline on caterpillars, bucket drums, 40-ft. boom.
1—O.&S., 20 ton, 8 wheel, M.C.B., 50-ft. boom, bucket drums, with dragline equip. & buckets.
1—O.&S., full revolving, 32-ft. boom on traction wheels, ¾-yd. bucket.

LOCOMOTIVES

1—6-wheel switcher, 18x24.
1—12x18, Porter saddle tank, 36-in. gauge.

SHOVELS AND DRAGLINES

1—Model 18 Osgood on caterpillars, ¾-yd. dipper, high lift.
1—Model 92 Marion on standard gauge railroad trucks.
1—Model 18B Bucyrus on caterpillars, 1¼-yd. dipper.
1—No. 3 Keystone with ditcher and skimmer scoops.
1—No. 6 Keystone, ditcher and skimmer with clam shell attachment.
1—Erie B on traction wheels, ¾-yd. dipper.

HOISTING ENGINES

1—Flory, 8¼x10, D.D., Incline or Shaft Hoist.
1—Stroudsburg, 10 x 12, D.C., D.D., with boiler, like new.

PAVERS

1—31E Austin, steam, semi-caterpillar.
1—31E Foote, Steam, full caterpillar, new.

ASPHALT PLANTS

1—2000-yd. Merriman, 1 car plant.
1— 800-yd. Iroquois, Portable.

STEAM ROAD ROLLERS

1— 8-ton Iroquois tandem.
1—10-ton, 3-wheel Case roller with scarifier, new last year.
1—10-ton, 3-wheel Kelly-Springfield.

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WE EXPECT TO BE SOLD OUT AND DO NOT GUARANTEE DELIVERY AFTER JULY 1, 1923

ELECTRIC HOIST AND DERRICK $1800

PRICES F. O. B. CARS, PRIMOS, PA.

PARTS

We have a quantity of parts and fittings that came into our possession with the Hoists ands Derricks that we purchased at Hog Island that we are offering for sale as Hoist extras or a set of Derrick fittings.

TIMBERS

Several 14 x 14 and 16 x 16, 40 ft., 50 ft. and 55 ft. new fur pine at 10c. per BM foot.

You Save at Least $2000

These Hoists and Derricks are standard late models, manufactured by The American Hoist & Derrick Co., St. Paul, Minn. They are almost new, and every one is GUARANTEED to be in first-class running order.

The Hoists have two drums and swingers, and are complete with starting and control equipment. Having banked lever control, and rated 6,000 pounds single line on each hoisting drum. Slewing rope 36 ft. per minute, and hoisting rope speed 160 ft. per minute. The MOTORS are OTIS 37 hp. A.C., 60-cycle, 3-phase, 440-volt, intermittent duty, slip-ring induction type and, if desired, may be changed to suit the individual current requirements of purchasers at cost.

These Hoists and Derricks may be inspected at any time. This Equipment is being sold in sets and in units of a Hoist or Derrick if desired. Immediate shipment can be made anywhere, but QUICK ACTION IS IMPERATIVE.

Wire, Phone or Write for Detailed Information, Folder, etc.

THE ELECTRIC HOIST & DERRICK CO.
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Primos, Pa., is 8 miles west of Philadelphia on P., B. & W. R. R.

DIMENSIONS OF DERRICKS

Mast—16 in. square, 40 ft. high.

Boom—Made of (2) 14 in. sq. timber 48 ft. long spliced to lengths of 80 ft. with (2) ⅞ in. and (2) 1⅛ in. truss rods.

Stiff Legs—14 in. sq., 60 ft. long or 16 in. sq., 46, 50 or 55 ft. long, will furnish either length desired, capacity 5 to 10 tons. Bull wheel 16 ft. dia. Principal sheaves 16 in. dia. and 14 in. single blocks.

The Cable which was formerly used will be given with each purchase of a Hoist with Derrick.

FOR SALE OR FOR RENT

Concrete Mixers, Lakewood Concrete Towers, Hoisting Engines, Derricks, Pumps, Gasoline Tractors, Steam Hammers, Buckets and Compressor outfits.

Edward Ehrbar, Inc., 29-33 Meserole Ave., Brooklyn, N. Y.

STIRLING BOILERS

823 Horse Power
Operated Less Than 90 Days

30—Class M-30, 823 hp. Babcock and Wilcox Stirling Water Tube Boilers, 200 lb. pressure. Drums, double riveted, double strap butt joint. Complete with Westinghouse Stokers, Forced Draft Fans, Vulcan Soot Blowers and all accessories. Inspection invited.

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in new Gas, Gasoline, Kerosene and Oil Engines, about half price, retested and inspected carefully and painted before shipment.

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436 ft 0 in. C. to C. End Pins. E 50, 659 tons. New, never been erected.

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1—10-E Smith steam paver, wheel trac., boom and bucket, 2-bag size, new 1921, $1475.
1—13-E Foote steam wheel paver, 2-bag size, chute, $625.
2—Austin 10-ton motor rollers, double cylinder engines, fine condition, each, $1100.

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150—Howe and Fairbanks Scales. 600 lbs. to 100 ton capacity. Platform, floor, warehouse, miners and transportation, truck and spiral types.

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Erie Pump Bargain

New, Never Used

8 inch heavy duty. Write for bargain price.

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CABLEWAY OUTFITS

3—Complete Cableway Outfits for light work of about 1,000-ft. span; including hoisting engines, boilers, carriages, buckets, fall blocks, sheaves, rope, etc., complete. Each $2,500

HOISTING ENGINES

1—D.C., D.D. Link Motion, Byers 5½x7, no boiler ..... $ 500
1—D.C., D.D. Link Motion, Lidgerwood, 6x8, no boiler 600
1—D.C., D.D. Link Motion, Byers, 5½x7, with boiler 1,000
1—D.C., D.D. Single Motion, Byers, 6x7, with boiler 1,000

BOILERS

2—35-hp. Vert. Boilers, all fittings, each.. $ 400

AUTO CRANES

1—Type C Byers, Trac. Wheels, ¾-yd. Clam Shell $2,200

PUMPS

2—3-in. Emerson Steam Pumps, each.... $ 200
2—3-in. Pulsometer Steam Pumps, each.. 200
1—2-in. Goulds Steam Force Pump..... 75

HAULING EQUIPMENT

2—3½-ton Paige Dump Trucks, good as new, each $2,500
1—Cletrac Caterpillar Tractor, used 2 mos. 1,000
2—Studebaker Dump Wagons, each..... 150

MISCELLANEOUS

1—No. 3 McKiernan-Terry Steam Pile Hammer ..... $ 300
2—McKiernan-Terry Steam Drills, each.. 200
3—Electric Blasting Machines, each.... 25
26—Insley, Ransome and Archer Chutes, per Lin. Ft. 1
1—Insley Mast Hoist, complete..... 150
60—Pcs. Lackawanna Steel Sheet Piling, 9-ft., 0-in. Lengths 250
1—Littleford Portable Tar Heater, with 2 pouring pots 60
1—O.&S. ¼-yd. Orange Peel Bucket, new. 250

The Concrete Steel Bridge Co.
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FOR SALE

Tractor

New 5-ton, Caterpillar Type, standard make, never used, suitable for road work and excavation. F.O.B. Buffalo, New York. Write for specifications.

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1—10-ton, 3-wheel **Kelley-Springfield**, 4 years old, 8 months' use.
1—10-ton, 3-wheel **Buffalo Pitts.**
2—5-ton **Tandem Kelley.**
1—8-ton **Buffalo Pitts.**
2—No. 3 **Keystone Excavators.**
2—No. 4 **Keystone Excavators.**

Acme Equipment Company
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I BEAMS
200 tons of 6-in., 12¼-lb. Steel Beams, 15 ft., 9 in. long.

HOISTING ENGINE
1—Twin Drum Coal Hoist, made by Geo. Haiss Mfg. Co., N. Y.; cylinders, 8x12; drums 24 in. dia.; 16-in. face; 37 in. dia. flanges; 40 hp.; Grab ½ ton.

BOILERS
3—Manning Vertical Boilers, 500 hp.; will insure for 175 lb.; immediate delivery.
1—H.R.T. Mass. Std. Boiler, 72 in. dia.x19 ft., 6 in. long; 125-lb. pressure.
3—Vertical Boilers; 35 hp.; 48 in. dia.x 9 ft., 1 in. high; insured for 125 lb.

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All sizes of Tanks, open and closed, suitable for storage of gasoline or oil, in stock at our Boston Yard.

SECOND-HAND PIPE
Of all sizes, with new threads and couplings.

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Miami Conservancy District

DRAGLINE EXCAVATORS

1—"Lidgerwood" Class "B" Steam Dragline Excavator, truck mounted, 60-ft. or 75-ft. boom, 2-yd., or 1½-yd. bucket.
1—"Lidgerwood" Class "B" Dragline Excavator, truck mounted, 60-ft. or 75-ft. boom, 2-yd. or 1½-yd. bucket.
1—"Lidgerwood" Class "B" Steam Dragline Excavator, mounted on four double flanged wheels. Boom is 60-ft. with 15-ft. extension and handles 1½-yd. or 2-yd. bucket.

1—"Bucyrus" Class 24 Electric Dragline Excavator, mounted on skids and rollers, 100-ft. boom and 3½-yd. bucket.
1—"Bucyrus" Class 14 Steam Dragline Excavators, mounted on caterpillars, with 60-ft. boom and 2-yd. bucket.
3—"Bucyrus" Class 24 Electric Dragline Excavators, skid mounted, with 85-, 100-, or 115-ft. boom, and 4½-, 3½-, or 2½-yd. bucket.
1—"Marion" Model 21 Dragline Excavator and Crane, mounted on caterpillars; 32-ft. boom, ¾-yd. bucket, either drag or clam shell.

August 1st Delivery

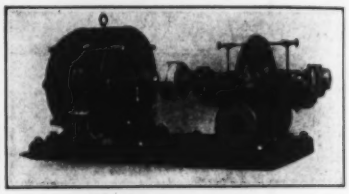
PUMPS

1—Worthington 4-in. centrifugal.
1—Worthington 6-in. centrifugal.
2—Weinman steam-driven automatic.
1—Piston Pump, 1½-in. suction, 1½-in. discharge, with gas engine.
1—Morris 8-in. centrifugal.
1—Worthington 8-in. centrifugal pump.
1—Weinman 3-in. suction, with 3-hp. motor.
1—Dean 7½x5x6.
1—Cameron steam piston, 7x6x7.
1—6-in. American centrifugal, dir. conn. to vertical steam engine.
1—12-in. Kingsford horiz. cent. pump.
1—"Swaby" 8-in. cent., with steam eng.
1—Morris 8-stage centrifugal.
1—14-in. Plat., double suction centrifugal stage horiz. dir. conn. 50-hp. motor; pump and motor.
1—12-in. R.H. "Morris" horiz. cent. unwatering pump, dir. conn. to steam engine.
2—Cameron 10-in. cent., dir. conn. to 100-hp. Westghse. motors, pump and motor.
1—8-in. Class B. S. Worthington cent. double suction, dir. conn. to 200-hp. Gen. Elec. induction motor. Pump and motor.

NOTE:—Will sell any of the above pumps without motors.

3—8-in. Allis-Chal., double suction, dir. conn., Bronze Impeller. Pump and motor.
6—8-in. Allis-Chal., double suction, dir. conn., Bronze Impeller. Pump and motor.
2—12-in. Allis-Chal., double suction, dir. conn., Bronze Impeller. Pump and motor.
1—14-in. Allis-Chal., double suction, dir. conn., Bucyrus Impeller. Pump and motor.

The Allis-Chalmers Pumps are direct connected to motors and can be bought without motors.



DUMP CARS
(Ready for delivery)
10—12-yd. Western, late model air dump.
8—12-yd. Western hand dump.

125—ELECTRIC MOTORS—125
7½ to 500 hp.—220-440—A.C.

PLYMOUTH GASOLINE LOCOMOTIVES
3-ton, 24 and 36-in. gauge.

SUB-STATION TOWERS
high voltage, with lightning arresters, and disconnecting switches.

9 CONCRETE BUCKETS
1½-yd. capacity.

SMITH CONCRETE MIXERS
½-yd. steam—¼-yd., gasoline.

LOCOMOTIVE CRANE
Orton & Steinbrenner, 20 ton.

SPIRAL RIVETED PIPE
5000 ft., 12 and 15 in.

100—TRANSFORMERS—100
6/10 kva. to 500 kva.

TRANSMISSION AND HIGH TENSION LINE MATERIAL

DREDGE PIPE
15-in. slip joint and elbows.

STEAM PILE HAMMERS
1—No. 4 Vulcan.
1—Ingersoll-Rand, 3 in.

LOCOMOTIVES
1—40-ton Baldwin, std. gauge.
1—15-ton Vulcan, 36-in. gauge.

Miami Conservancy District, Dayton, O.
(Sales Division)

FOR SALE

Industrial Road Equipment

Located in Central Illinois

1—Complete Industrial Road Outfit consisting of 20-lb., 24-in. gauge track, 24-in. gauge Koppel batch-box Cars, also V-dump.
Plymouth Locomotives, 2-in. pipe, CH & E pumps, Lakewood Finishing Machines. Lakewood subgrader, 5-ton Roller, etc. All in perfect condition.

Frazier-Davis Const. Co.
Arcade Bldg., St. Louis

NEW BOILER TUBES
Immediate Stock Shipment—All Sizes
Desired Lengths at Mill Prices
NEW AND RELAYING RAILS
ALL WEIGHTS
Small Vertical Boilers
Automatic Gas Fired Boilers

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BOILER

1—250 Hp. Return Tubular 84 in. x 18 ft.

BENTLEY-MORRISON CORP.
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Robert H. Laverie & Harris Brothers Co., Liquidators

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Machinery-Equipment-Supplies

Located at

SHOOTERS ISLAND, New York

Machinery, equipment and supplies now located on Shooters Island. Finest machine tools, structural tools, power equipment and general industrial plant supplies.

26-ft. Wickes Bros. Horizontal Bending Rolls, equipped with motors to suit requirements.

14-ft. Vertical, Southwark Foundry and Machine Works Bending Rolls, equipped with motors to suit requirements.

Hugh-Smith Company Hydraulic Flanging Bending Machine or Brake, Horizontal Type, 24-ft. bed.

Smith Brothers & Company Four-Sided Punching and Shearing Machine, capacity to punch 1 in. thru 1 in. and shear 6 x ¾ in.

Collier-Smith Quickwork No. 6 Rotary Shear, 48 in. throat, 1 in. plate.

Crane Company 8 in. Pipe Threading Machine, capacity 2½ in. to 8 in.

Chambersburg & Erie Foundry Steam Hammers, 5, 3 and 1½ tons capacity.

Dietrick & Harvey Open Side Planer, 74 in. x 60 in. x 20 ft.

10, 25 and 50 ton Overhead Electric Travelling Cranes.

Ingersoll-Rand 5,000-ft. direct connected Air Compressors.

Sullivan 2,500-ft. Corliss Steam Driven Air Compressors.

Address all communications concerning Shooters Island equipment to Harris Brothers Co., Room 712, 17 State St., New York, N. Y.

STEAM SHOVELS

1—95-ton Bucyrus Railroad Type Steam Shovel, 4½-yd. dipper.
4—70-ton Bucyrus Railroad Type Steam Shovels, 2½ to 3-yd. dippers.
Shovels are rebuilt and in first class working order.

DUMP CARS

80—12-yd. Wester & Oliver All Steel Dump Cars. Standard gauge.
40—1¼-yd. Austin Two Side Dump Cars. Wood body. 20-in. gauge.

POWER PUMPS

1—24-in. Kingsford Horizontal Centrifugal Pump. Belt driven.
1—12-in. Platt Iron Works Horizontal Centrifugal Pump. Arranged for direct connection.
1—12-in. Fulton Machine Co. Horizontal Centrifugal Pump. Belt driven.
1—8-in. American Horizontal Centrifugal Pump. Direct connected to 20-hp. Westinghouse 220-v., direct current motor.
1—No. 924—9-in.x10-in. Goulds Triplex Pump. Belt driven.
1—8-in.x8-in. Deane Triplex Pump, belt driven.
1—7-in.x8-in. Deane Triplex Pump, belt driven.

HOISTING ENGINES

1—7½-in.x10-in. Dake. Dbl. Cyl., Sgl. Drum Steam Hoists, with reversing throttle valves.
1—6¼-in.x8-in. Clyde Dbl. Cyl., Dbl. Drum Steam Hoist.
1—4½-in.x6-in. Stroudsburg. Dbl. Cyl. Sgl Drum Steam Hoist, with boiler.
1—5-in.x8-in. Lidgerwood Dbl. Cyl. Sgl. Drum Steam Hoist, reversible link motion.

STEEL STORAGE TANKS

12—20,000 gal. capacity, vertical.
8—10,000 gal. capacity, horizontal.
15— 5,500 gal. capacity, horizontal.
10— 2,000 gal. capacity, horizontal.

AIR COMPRESSORS

1—1850-ft. W.B. 2 Sullivan Steam Driven Air Compressor. 100 lbs. pressure.
1—1700-ft. G.C. S.D. Chicago Pneumatic Tool Co. Steam Driven Air Compressor. 100 lbs. pressure.
1—1000-ft. Class H. Ingersoll Steam Driven Air Compressor.
3—50-ft. New York Air Brake Co. Locomotive Type Air Compressors.
1—1750-ft. Laidlow Dunn Gordon Belt Driven Air Compressor. 100 lbs. pressure.
1—309-ft. Class S.O. 2 Chicago Pneumatic Tool Co. Oil Engine Driven Air Compressor. 100 lbs. pressure.

STEAM PUMPS

1—10-in.x16-in.x8½-in.x18-in. Fairbanks-Morse Duplex Steam Pump. Plunger type, outside packed.
1—16-in.x8½-in.x12-in. Worthington Duplex Steam Pump.
1—14-in.x8½-in.x10-in. Worthington Duplex Steam Pump.
1—8-in.x12-in.x8-in.x12-in. Worthington Duplex Steam Pump.
4—9-in. x 5¼-in. x 12-in. Deane Duplex Steam Pumps.
1—750 gal. capacity C. H. Wheeler Underwriters Duplex Steam Fire Pump. Size 16 in. x 9 in. x 12 in. Section 10 in. Discharge 8 in.

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35th and Iron Streets **CHICAGO**

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1—1-yd. HAYWARD ORANGE PEEL.
2—24-in. gauge LAKEWOOD CARS with Lakewood Controllable Form Buckets.
1—STIFF LEG DERRICK with 12-in.x12-in.x60-ft. boom, with bull wheel, equipped for clam shell work. Good condition.
1—STIFF-LEG DERRICK with 14-in.x14-in.x 63-ft. boom, with bull wheel, equipped for clam shell work. Good condition.
3—No. 19 D.B. SULLIVAN AIR JACK HAM'RS.
1—No. 9 D.C. SULLIVAN AIR JACK HAM'RS.
400 ft. of 6-in. W. I. PIPE, with flanges.
1500 ft. of ¾-in. BLACK PIPE.
5—½-yd. TWIN HOPPER, Lee Bodies, designed for Ford Truck.
1—4-yd. LEE SIDE DUMPING BODY with drop end gate.
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1—DITCHER SCOOP and Attachment for No. 3 Keystone.
1—A-FRAME TRAVELING DERRICK with 80-ft. Steel Boom.
1—Type O THEW FULL REVOLVING SHOVEL for sale or rent.
1—8-in. GOULD CENTRIFUGAL PUMP, D.C. Steam Engine, complete with fitting.
1—20-in. MORRIS CENTRIFUGAL PUMP, D.C. Steam Engine.
3700-ft. INDUSTRIAL TRACK, 24-in. gauge, 20-lb. rail, 15-ft. sections, 6 ties to the section, and three switches.
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Shop No. 4262 in first class condition with six roll Skimmer Scoop. Price $3500.00

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Grease Cups.

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16—15 in., 75 lb., 16 ft. 5 in. long, together with three tons of plates. Used on temporary work five months.

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1—Iroquois, 800-yd., 2 unit Portable Plant.
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1—5-ton Iroquois Tandem Roller.

CARS

10—80,000-lb. capacity Gondola Cars.
5—60,000-lb. capacity Rebuilt Box Cars.

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Box Cars—40 ft.—Steel Underframes.
Gondola Cars—80,000 lb. Capacity.

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Steam Hoists

FOR SALE OR RENT

7½-in.x12-in. **Mundy** Double Cylinder, Double Drum Hoisting Engine with A.S.M.E. Code Boiler.

6¼-in.x8-in. **Lidgerwood** Double Cylinder, Single Drum Skeleton Frame Hoisting Engine.

5½-in.x10-in. **Mundy** Double Cylinder, Double Drum Hoisting Engine with A.S.M.E. Code Boiler.

5-in.x10-in. **Mundy** Double Cylinder, Double Drum Hoisting Engine with Boiler.

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Immediate Delivery

48—250 Horse Power, New, Standard Cross Drum Water Tube Boilers. Built for 200 lbs. working pressure. Complete with steel casing, steam fittings and grates. Ready for immediate delivery from Chicago, Dumont, New Jersey and Orange, Texas.

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LOCOMOTIVES and DUMP CARS

7—36 in. gauge; 18 ton, 4-driver saddle tank Locomotives.

50—36 in. gauge; 4 yard, 2-Way Dump Cars.

All in first class condition, ready for immediate shipment.

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1 Smith Tilting Mixer

1 cu. yd. capacity, with batch hopper. With or without motor. Used on two jobs.

1 Wood Frame Whirley

40-ft. boom, full circle swing, American hoist engine and independent swinging engine. Just the thing for the job that cannot stand much investment.

The mixer and Whirley must sell regardless of price. Also have 2 Whirleys, all steel construction, with 50 and 60-ft. booms and three drum hoists on them.

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Model 29 Osgood Shovel on road wheels completely overhauled, two years old..... $6,500

Ten-ton Kelly Tandem Steam Roller in excellent condition, shop number 747..... $1,350

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10x12 Lidgerwood Cableway Steam **Hoisting Engine;** bank of 5 levers; double cylinder, double drum; A-1 condition.

20-ton McMyler, 8-wheel **Locomotive Crane;** double drum for bucket operation; 50-ft. steel boom, with clamshell bucket; in first class condition. Immediate shipment.

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steam power, on wheels, with distributing spout. Practically new. First-class condition.

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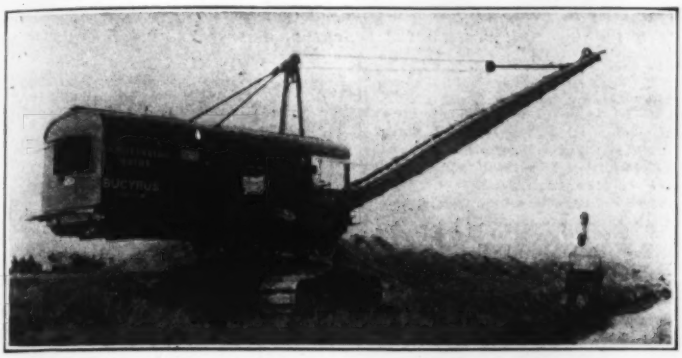

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2—4x6, National swingers.
1—7¼x10, DD, Mundy and boiler.
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DERRICKS
For Bucket Work

1—75-ft. boom, Terry, wooden stiff-leg.
1—92-ft. boom, Terry, wooden stiff-leg.

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Standard Gage — **Saddle Tank**

5—14x22, 4-wheel Americans.
2—13x18, 4-wheel Americans.
2—14x22, 4-wheel Baldwins.
3—13x20, 4-wheel Baldwins.

STEAM SHOVELS

1—95C Bucyrus, 3½-yd. dipper, Serial No. 1415.
1—73 Osgood, 3-yd. dipper, Serial No. 496.
2—70C Bucyrus, 2½-yd. dipper, Serial No. 1782.
1—69 Osgood, 2½-yd. dipper, Serial No. 546.

CARS

11—16-yd. K.&J., all-steel air dump, standard gage, rebuilt like new.

QUALITY H-F-CO SERVICE

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From Our Large Stock of New and Overhauled Equipment

7-S Knickerbocker Concrete Mixer, gasoline driven.

10-ton Buffalo Pitts 3-wheel Roller with pressure scarifier.

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4½ ton Milwaukee Gasoline Locomotive, 24 in. gauge, rebuilt.

4 mi. 24-in. gauge Portable Track, 20-lb. rail.

4 in. Lawrence Centrifugal Dredging Pump, direct connected to 40 hp. A.C. Motor.

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1—Type B, Erie Caterpillar, ¾-yd. dipper, 22-ft. boom, 19-ft. sticks.
1—Type B, Erie Revolving Traction Type, ¾-yd. dipper.
1—No. 1 Thew 1-yd. dipper, Traction Type.
1—14 B. Bucyrus, Traction Type, ¾-yd. dipper.

Many other shovels—send for list.

LOCOMOTIVES

1—24-in. gauge, 7-in. x 12-in., 8-ton Locomotive.
80 Locomotives in stock—send for list.

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4 miles, 24-in. gauge, Kopple Portable Track, 20-lb. Rail.

We have 50,000 ft. 1½-in. Galvanized Steel Cable. New never used, recently purchased from government.

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Contractors Mchy. & Supply Co.

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Locomotive For Sale

1—Vulcan 5x10 Four Driver Saddle Tank, 36-in. gauge, in first class condition. Price $1500.00

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40-TON LOCOMOTIVE

1—14x22, stand. gauge, 40-ton **American**, 4-wheel Saddle Tank, new late 1921, A.S.M.E. boiler, 190 lb. pressure, automatic couplers, slightly used, just overhauled, guaranteed like new.

Immediate Shipment—Attractive Prices

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1—Whitcomb 6-ton, 24-in. gauge **Locomotive**, used 90 days, $2,250.
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20—Western, oak **Batch Boxes**, bottom dump, 37 cu. ft. capacity, with separate compartments for cement, sand and gravel; practically new, at $37.50.

The above equipment is guaranteed the same as new. Can be inspected at our warehouse.

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Late Type Thew **Steam Shovel,** ¾-yd. dipper.
Shipper shaft boom.
Rex 14-E **Paver** on wheels.
Bucyrus 70-C **Steam Shovel,** completely overhauled. Also
all other types of contractors' machinery.
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HOLLANDER EQUIPMENT COMPANY

"The Key to Good Machinery"

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2 LOCOMOTIVES

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100,000 lbs. Capacity Flat Car

38 ft. long, steel underframe.
First class condition. Immediate shipment.

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I am the only machinery dealer specializing in compressors, and have the largest stock—located in all sections of North America. Each inquiry will receive the benefit of ten years experience.

5320-5011 ft. PRE Ingersoll, Electric.
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1190-599 ft. XB-2 Ingersoll, two-stage belt.
706-445 ft. WJ-3 Sullivan, two-stage belt.
688 ft. ER-1 Ingersoll, single-stage belt, 45 lb.
324 ft. ER-1 Ingersoll, single-stage belt.
New—209 ft. Climax, single-stage belt.
121 ft. ER-1 Ingersoll, single-stage belt, 25 lb.

2588 ft. OC-3 Ingersoll, steam.
2570 ft. Laidlaw Feather Valve, steam, 80 lb. air.
1592 ft. X-1 Ingersoll, steam, 55 lb. air.
1955-1531-648 ft. XPV-3 Ingersoll, steam.
1190-599-446 ft. X-3 Ingersoll, steam.
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176 ft. N-SS Chicago, steam.

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2500 kw., Westinghouse Turbo, 3-60-2300.
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202 hp. HRT Mass. Std. 165 lbs.
No. 5 Leyner Drill Sharpener.
20-ton Browning Loco. Crane, 50-ft. boom.
2—1000 ft. Cableways, Engines, no towers.

BOILERS—GENERATORS—LOCOMOTIVE CRANES—DERRICKS, ETC.

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"The Buyer Must Be Satisfied—Always"

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Ransome 21-E Paver, steam driven boom and bucket discharge. Has laid 2 miles 20 ft. road. $4,000.

FINISHING MACHINE

1—Lakewood Machine in perfect condition. $1,000.

LOCOMOTIVES

1—6-ton Plymouth. $2,200.
3—3-ton Plymouths. $1,200. Perfect condition.
6,000 ft. 24 gauge track; 15 batch-box cars with Hyatt roller Bearings; 30 batch-boxes 34 cubic ft.

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Bridgeton, N. J.

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Complete New Concrete Plant

(used six months), including 180-ft. Insley steel tower, two 40-ft. bucket elevators, Blaw-Knox measuring batchers, 21-S Smith Tilting Steam Mixer, Lambert double drum concrete tower hoist—speed 350 ft. per minute, 80 hp. locomotive boiler, now located at Washington, D. C., on job. Save $4,000.

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FOR SALE

Rex (Chain Belt) Concrete Mixer, ½ yard capacity

Mixer is equipped with steam engine and boiler, power loader and automatic water tank, mounted on steel skids and trucks. Holds 24 feet of loose material. Thoroughly overhauled and equipped with new fittings throughout. For practical purposes. Like new.
We offer this mixer at a SAVING OF OVER $1,000.00. F.O.B. cars or truck, Metropolitan District.

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Located in various parts of the United States

BOILERS	ENGINES	PIPE
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COMPRESSORS	HOISTS	TRACTORS
CONVEYORS	LOADERS	TRUCKS
CRANES	LOCOMOTIVES	TRACK
CRUSHERS	MIXERS	TANKS
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Write, wire or phone for descriptions and prices of machines you need.

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2—10-ton **Buffalo Pitts Rollers.**
1—21-E **Rex Paver.**
1—100-ton **Blaw-Knox Bin.**
1—36x48 **Jaw Crusher.**
1—6-ton **Kelly-Springfield Roller.**
1—**Traveling Derrick**, with 9x10, 3-drum engine and boiler.
1—Marion 60 **Steam Shovel.**
1—Type O **Thew Shovel.**
1—**Byers Auto Crane.**
1—**Mundy Swinging Engine.**
1—10-ton **Monarch Roller.**
1—24-in.x60-ft. **Belt Conveyor.**

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500 Brisbane Bldg., Buffalo, N. Y.

FOR SALE

PAVERS

1—Foote **Paver**, size 27-E, with steam engine and boiler and distributing chute—$1800.
1—Ransome **Paver**, high drum, size 7-E, with 6 hp. Novo gasoline engine and 10-ft. distributing chute—$1100.

For immediate shipment. Located close to New York; in good working order.

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14-E Rex, good as new, used but 4 weeks.
14-E Koehring.
No. 9 Koehring.

SUTTON & CORSON CO.
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TRAILERS—TRACTORS—TRUCKS

12—Troy Trailers, Drop Frame, Side Dump, High Speed.
1—10-ton Holt Caterpillar Tractor, 40-60 type.
2—5-ton Mack Chassis, Flusher Equipment.
All in First-Class Condition—completely overhauled

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Steam Hoist with Boiler

1—Donegan & Swift, with 125-ft. ⅝-in. cable, 4½-in.x8-in. double cylinder, single drum.
Good as new, will sell cheap.

CONRAD SEBOLT
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Road-Rollers; Pavers; Shovels; Keystone Excavators; Locomotives; Track; Dump and Flat Cars; Hoists; Cranes; Graders; Finishers.

All necessary Equipment for complete plant.

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1—Gyratory No. 6-F with fittings

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FOR SALE OR RENT

EARTH MOVING, HIGHWAY, RAILROAD AND BUILDING CONTRACTORS EQUIPMENT

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Railroad Type

1—Model 92 Marion, 5 yd.
1—Model 80 Marion, 4 yd.
1—Model 60 Marion, 2½ yd.
1—70-C Bucyrus, 2½ yd.
1—Model 41 Marion, 1½ yd.
2—Model 40 Marion, 1½ yd.
1—Model 20 Marion, 1¼ yd.
1—Model 36 Marion, 1½ yd. (Revolving).

Crawler Type

2—Model 37 Marion, High Lift, 1¼ yd.
4—Model 36 Marion, High Lift, 1 yd.
1—225-B Bucyrus, 6 yd.
1— 50-B Bucyrus, 1¼ yd.
1— 35-B Bucyrus, 1½ yd.
5—Model 21 Marions, ¾ yd.
2—Model 28 Marions, ¾ yd.
2—18 Osgoods, ¾ yd.

Traction Type

1—Model 36 Marion, 1½ yd.
1—Model 30 Marion, ¾ yd.
2—18 Osgoods, ¾ yd.
2—Model 28 Marions, ¾ yd.
2—Type B. Erie, ¾ yd.
2—Type A. Erie, ½ yd.

LOCOMOTIVES

1—40-ton Davenport, 4-D, S.G. Switcher.
1—40-ton American, 4-D, S.T., S.G.
1—20-ton Lima, 4-D, S.T., S.G.
2—10x16-18-ton, 36-in. gauge Porters.
2—10x16-18-ton, 36-in. gauge Vulcans.
3— 9x14-14-ton, 36-in. gauge Vulcans.
1—50-ton, 36-in. gauge Climax Geared.
1—40-ton, 36-in. gauge Climax Geared.
1—10x16-18-ton, 42-in. gauge Porter.
1—6x10-7½-ton, 42-in. gauge Vulcan.
1—7x12-24-in. gauge Vulcan.
1—7x12-24-in. gauge Davenport.
1—8x12-24-in. gauge Vulcan.
2—3½-ton, 24-in. gauge Burton, Gasoline.
1—3-ton, 24-in. gauge Plymouth, Gasoline.
2—3-ton, 36-in. gauge Plymouth, Gasoline.
2—5-ton, 36-in. gauge W. Elec., Trolley Type.
1—8-ton, 36-in. gauge W. Elec., Trolley Type.

TRACK

2 miles track, 80-lb. rail, complete with splices.

CLAM SHELL BUCKETS

1— ¾-yd. Williams "Favorite."
1— ¾-yd. Blaw-Knox.
1— ¾-yd. Owen.
4—1-yd. Owen.
2—1¼-yd. Owen
1—1½-yd. Owen
2—2-yd. Owen

LOCOMOTIVE CRANES

1—25-ton, 8-wheel Ohio, 60-ft. boom.
1—20-ton, 8-wheel Ohio, 60-ft. boom.
1—20-ton, 8-wheel Industrial, 42-ft. boom.
1—14-ft., 6-in. ga. McMyler Whirley, 60-ft. bm.
1—10-ton Byers Crawler, Revolving, 35-ft. boom.
1—Byers Auto-crane, Semi-Caterpillar.

ROAD ROLLERS

1—10-ton, 3-wheel Kelly-Springfield.
1—10-ton, 3-wheel Buffalo-Pitts.
1—Steam Pressure Cylinder Scarifier.
1—"Porcupine" Scarifier.

PAVERS

1—14-E. Rex Traction, Steam.
1—21-E. Rex Crawler, Steam.

CARS

12—12-yd., S.G. Oliver Hand Dump (All Steel).
10—12-yd., S.G. Western Hand Dump.
14—12-yd., S.G. Western Air Dump.
12— 4-yd., 36-in. gauge Western Steel Beams.
20— 4-yd., 36-in. gauge Western Wood Beams.
12— 4-yd., 36-in. gauge K.&J. Steel Beams.
16— 3-yd., 36-in. gauge K.&J. Wood Beams.
9— 3-yd., 36-in. gauge Continental Wood Bms.
1—36-in. gauge Flat.
11—1½-yd., 24-in. gauge Western Wood Beams.
8—36-cu. ft., 24-in. gauge Koppel (Steel).

Also Air Compressors, Engines, Boilers, Derricks, Steam, Gasoline and Electric Hoists, Road Builders' Equipment, Concrete Mixers, Pumps, Crushers, Rails, Portable Track, Steam Hammers, Scrapers, and Wagons.

UTILITY EQUIPMENT COMPANY, Union Bank Bldg., Pittsburgh, Pa.

DERRICK BOAT FOR SALE

Two hulls 90 ft. x 16 ft. each, clearance over all 35 ft., fully equipped locomotive type return tube boiler, triple drum 9 x 12 National hoist, swing engine, necessary spud hoists and spuds, etc., boom 55 ft. long.....$7500
1—10 16 Vulcan Locomotive, 36 in. gauge..... 1200
7—12-yd. Oliver Dump Cars (entirely rebuilt and not since used,) each.. 1000
1—65-ton Bucyrus Shovel..... 7500
1—70-ton Bucyrus Shovel..... 5000
1—1-yd. Haywood Orange Peel Bucket..... 550
1—3-yd. Haywood Orange Peel Bucket..... 1500

Also other construction equipment at low prices.

James H. Dawes, General Contractor, Tonawanda, N. Y.

DITCHER

No. 3 Austin Ditcher For Sale

Used less than six months. Four cylinder Buffalo Engine, burns kerosene. Excavates ditch 12 ft. across top, 3 ft. across bottom, sloping sides. First-class condition.

MacAndrews and Forbes Company
3rd St. and Jefferson Ave., Camden, N. J.

STEAM HOISTS

7x10 Lidgerwood, D.C., Dble. Drum, with Boiler.
8¼x10 Flory, D.C., Double Drum, with Boiler.
8¼x10 American, D.C., Double Drum, with Boiler.
8¼x10 American, D.C., 3 Drum, with Boiler.
8x12 Flory, D.C., Double Drum, without Boiler.
8¼x10 Amer., D.C., Double Drum, without Boiler.

GASOLINE LOCOMOTIVES

3-Ton Plymouth, 24-in. Gauge.
6-Ton Whitcomb, 24-in. Gauge.
7-Ton Whitcomb, 24-in. Gauge.
3-Ton Plymouth, 36-in. Gauge.
10-Ton Port Huron Steam Roller, 3 Wheeler, D.C.
25-hp. Rumley Traction Eng., D.C., Steel Gearing.
3 Port Huron, Reversible, 6-yd., Steel Dump Cars.

ARTHUR S. PARTRIDGE
415 Pine Street, St. Louis, Mo.

FOR SALE

ROAD EQUIPMENT

1—10-ton **Austin Road Roller, gasoline.**
1—15-ton **Holt Caterpillar Tractor,** 75 hp.
2—**Maney Scrapers.**
1—**Little Giant Austin Western Road Grader.**
2500 lin. ft., 20 lb. 24-in. gauge industrial track in 15-ft. sections.

MIXERS

1—¾-yd. **Ransome Mixer,** mounted on skids, equipped with steam engine, side loader and batch hopper.

DRAGLINE

1—**Class 14 Bucyrus Dragline** mounted on caterpillar tractors. Shop No. 3562 with 70-ft. boom, 2-yd. Page bucket.

Above Equipment Located at Chicago
MELLON-STUART CO.
Fisher Bldg., Chicago

MISCELLANEOUS

New and second-hand structural steel; all sizes.
100 tons 4.1 military barb wire, galvanized.
C/1 Bessemer screw cutting stock, 9/32 in., 11/32 in., 5/16 in. and ⅜ in.
2—72-in. x 18-ft. H.R.T. Pennsylvania standard, 125 lbs., complete with fronts and fittings.
300,000 ft. Merchant Long Leaf Yellow Pine, sizes 12 x 14 and under.
200 pair six hole, 34-in., section A, 85-A.S. new angle bars.
Tanks (all sizes), Stacks, Contractors' Equipment, Hoisting Engines, Boilers, Pumps, etc.

Henry A. Hitner's Sons Co.
4501 Richmond St., Philadelphia, Pa.

FOR SALE

AUSTIN TRENCHER

1—00, used very little, like new. Also an **Austin Backfiller.**

R. F. RELLY CONTRACTING CO.,
Easton, Penna.

TRENCH MACHINES

1—Austin 00 digs 10 ft. deep up to 28 in. wide, gasoline driven.
3—Parsons Backfiller, caterpillar traction.
2—Buckeye No. 4, Gasoline driven.
1—042 Austin digs 18 ft. deep up to 42 in. wide, gasoline driven.

J. McELROY, 11 S. La Salle St., Chicago

MERRIMAN ASPHALT PLANT

We have for sale one rebuilt No. 1 Merriman 2000 yard, One-Car Steam Melting Asphalt Plant. It is in fine condition and we can make good delivery.

Here's your chance to get a real asphalt plant at a price that is right. Better get in touch with us quickly.

The East Iron & Machine Co.
Lima, Ohio.

FOR RENT OR SALE

Hoisting Engines
Air Compressors
Concrete Mixers
Boilers, Pumps
Derricks
Steam Shovels
Buckets and Smoke Stacks

Pierce Foundation Corp.
738 E. 141 St., New York City
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FOR SALE

PARSONS' TRENCHING MACHINE

For Immediate Delivery

JOHN B. McLANE & COMPANY
Newport, Kentucky

For Sale Cheap

750,000 Belgian Square Trap Rock Paving **Block.**

Also

3—Whitcomb **Locomotives,** 15,000 ft. 20-lb. rail.
24-in. gauge **Koppel Cars** and Western Batch **Boxes.**

SAMPSON & REUTER
221 Catherine St., Elizabeth, N. J.

FOR SALE OR RENT

STEAM SHOVELS

1—Model 18, Osgood, revolving, mounted on caterpillar, high-lift equipment, ¾-yd. dipper (New July, 1922).

1—Model 18, Osgood, revolving, mounted on caterpillar, high lift equipment, ¾-yd. dipper (New 1920).

1—Model 28, Marion, revolving, Shop No. 3375, traction wheels, standard boom, ⅝-yd. dipper.

1—18B Bucyrus, revolving, Shop No. 1764, traction wheels, standard boom, ⅝-cu. yd. dipper.

2—70C Bucyrus, Railway type, Shop Nos. 1499 and 1582, standard gauge, 2½-yd. dippers.

1—Little Giant, Railway type, standard gauge, equipped with standard boom, 1¼-yd. dipper.

GONDOLA CARS

50—80,000-lb. capacity, standard gauge; all cars in service. Specifications on request.

LOCOMOTIVE

1—24-ton, 6-wheeled, connected Whitcomb gasoline switcher, standard gauge, 6-cyl. Minneapolis engine.

TRACTORS AND TRAILER

1—10-ton Holt Caterpillar Tractor.
1—120-hp. Holt Caterpillar Tractor, completely rebuilt at factory
1—5-ton Troy Trailer.

DRAGLINES

1—Class 14 Bucyrus caterpillars, 60-ft. boom, 2-yd. bucket.
1—Class 24 Bucyrus, steam-operated, Shop No. 772, skids and rollers, 100-ft. boom, 3½-yd. bucket.
1—Class 24 Bucyrus Electric skids and rollers, 100-ft. boom, 3½-yd. bucket.
1—Monighan, A-1, steam, traction wheels 40-ft. boom, 1-yd bucket.

The above list is constantly changing. No matter what your machinery requirements are, write us—we may have it.

BECK & BABB, 29 La Salle Street, CHICAGO, ILL.

CRANE

Austin No. 4 full revolving gasoline driven Crane on caterpillar tread 35 ft. boom. Used two months.

LOCOMOTIVE

Baldwin 35-ton, standard gauge saddle tank 0-4-0 air brake and air dump.

A. J. O'Neill Company
1524 Chestnut St., Philadelphia, Pa.

EXCEPTIONALLY GOOD ITEMS

LOCOMOTIVE CRANES

1—25-ton Broad Gauge Locomotive Type Crane, 50-ft. boom, D.D., Bucket Handling, A.S.M.E. Boiler, new 1918. Perfect condition.
1—20-ton Browning D.D., 50-ft. boom, 8-wheel Mass. Boiler, Shop No. 1149. Located Phila.

ROAD CRANE

1—"Little Giant", Full Revolving Road Crane, mounted on traction wheels, 30-ft. boom, new July, 1920.

AIR COMPRESSOR

1—2000-cu. ft. Laidlaw, 2-Stage Tandem, Compound Steam Operated Air Compressor, new 1918. Perfect condition. Must be moved quickly. Will price right for quick sale.

SADDLE BOILER CARS

3—All-Steel Saddle Boiler Cars, 140,000-lb. underframe. Can be used also as Flat Cars. Standard gauge, 8 wheel. Perfect condition.

WE ALSO OFFER

Dredges, Shovels, Cars, Locomotives, Draglines, Road Equipment, Hoisting Engines, Etc.

WHAT ARE YOUR REQUIREMENTS?

B. M. WEISS

1324 Widener Bldg. **Phone Locust 4816** **Philadelphia, Pa.**

LOCOMOTIVE CRANES

1—McMyler, 20 ton, 8 wheel, 40-ft. boom, bucket operating, located in Cleveland.

1—Orten & Steinbrenner, 15 ton, 8 wheel, 40-ft. boom, 1-yd. bucket, located in Elizabeth, N. J.

1—Interstate, 20 ton, 8 wheel, 50-ft. boom, bucket operating, located in Elizabeth, N. J.

1—Browning, 15 ton, 4 wheel, 50-ft. boom, bucket operating, located in Elizabeth, N. J.

1—Browning, 15 ton, 8 wheel, 38-ft. boom, bucket operating, located in Ohio.

1—Brown Hoist, 15-20 ton, 8 wheel, 42-ft. boom, hook block.

1—Industrial, 7½ ton, 4 wheel.

1—Browning, 7½ ton, 4 wheel, electric.

Hoisting Machinery Co.
50 Church Street, New York.

LOCOMOTIVE CRANE

20-ton American, 8-wheel, M.C.B. Trucks, double drum arranged, for clam shell operation. A. S. M. E. boiler, 125 lb. working pressure. Crane in excellent condition. Ready to put on job.

Big List Contractors Equipment

L. A. GREEN

1120 1st National Bk. Bldg., Pittsburgh, Pa.
Phone Court 0690.

FOR SALE

BYERS AUTO CRANE MODEL "C"

Modern Type on Traction Wheels, in Excellent Operating Condition.

30 hp., 4 cylinder, Gasoline Engine
Car body, deep steel channels, 18 ft. long. Width outside wheels, 10 ft.
Derrick capacity 4,500 lb. at 20-ft. radius.
¾-yd. bucket capacity.
Length of boom, 30 ft.

Immediate Delivery.

THE NEW LONDON SHIP & ENGINE CO.
Groton, Connecticut.

Railroad Cars

100—80,000-lb. capacity flat cars; new bodies.

100—80,000-lb. capacity box cars; thoroughly rebuilt.

35—100,000-lb. capacity tank cars; good as new—7,200-gal. capacity.

Houston Railway Car Co.
Houston, Texas.

FOR SALE

Cranes—Shovels

1—Osgood "18" Steam Shovel. On traction wheels. In excellent condition. Price $3000.

1—P & H "205" Crane. ½-yd clamshell. Only used four months.

1—Keystone No. 6 with ditching and skimmer attachments. New in 1921, just overhauled. Price $3200.

(Other Equipment not listed)

G. C. WILLIAMS

28 East Jackson Blvd., Chicago, Ill.
Phone: Wabash 9327.

LOCOMOTIVE CRANES

No. 205 P & H 30-ft. boom, ¾-yd. bucket.
No. 3 Byers, 32-ft. boom, ¾-yd. bucket, steam.
BYERS AUTOCRANE, 30-ft. boom, 1-yd. bucket.

STEAM SHOVELS

Model 28 Marion, ⅝-yd. dipper, traction.
No. 0 Thew ⅝-yd. dipper, railway type.
3—Model 60 Marion, 2½-yd. dipper, railway type.
225-B Bucyrus Electric Shovel, 5, 6, 8-yd. Bkts.
110-C Bucyrus Standard Gauge Shovel.

BOILERS

2—100 hp. Locomotive type, 100 lb.
60 hp. Locomotive type, 90 lb.

HOISTS

25 and 50 hp. Electric Hoists, D.D., Dragline, 440 v., 60 cy., 3 ph. motors.
100 hp. Thomas 2-speed, 220 v., 3 ph., 60 cy.
Contractors and Rock Crushing Equipment.

ROSS POWER EQUIPMENT CO.
Indianapolis, Ind.

FLAT CARS
40 STD. GAGE 20,000 LBS. CAPACITY
4 WHEEL—ROLLER BEARING

All-Steel Construction. GOOD AS NEW.

Suitable for general industrial purposes as push cars or with gasoline or steam locomotives. Auto couplers; weight 2700 lbs. each.

WALTER A. ZELNICKER SUPPLY COMPANY, St. Louis, Mo.
Rail, Locomotives, Steel Piling, Cranes, Tanks, Etc.

We Buy, Sell, Rent and Rebuild

CONTRACTORS EQUIPMENT

For Immediate Delivery

Browning ⅞-yd. Caterpillar Shovels

CATERPILLAR CRANES

Browning 7½-ton Caterpillar Cranes, 38-ft. boom.

TRACTION WHEEL SHOVELS

Marion Model 31, on traction wheels.
Type 3-A Thew 22-ft. dipper sticks, 1¼-yd. dipper, shipper shaft type.
Type A-1 Thew, on traction wheels, ⅞-yd. dipper.
1—Electric Self-Generating Locomotive Crane, mounted on traction wheels.

LOCOMOTIVE CRANES

1—20-ton, 4-wheel Browning Crane, 40-ft. boom.
1—15-ton, O. & S., 8-wheel Crane, 40-ft. boom.
1—30-ton Browning Crane, 8 wheel, 40-ft. boom.
1—20-ton Browning Locomotive Crane, 8 wheel, 50-ft. boom.
1—Brown Hoist, No. 4-J Locomotive Crane, 50-ft. boom.

STRIPPING SHOVELS

New and used, ranging in capacity from 2 to 6 yds., either steam or electric driven.

VICTOR R. BROWNING & CO.
Lock Box 27, Collinwood Station,
Cleveland, Ohio.

LOCOMOTIVE CRANE

1—25-ton, 8-wheel, stand. gauge Browning No. 5-C, built late 1921, A.S.M.E. boiler, 50-ft. boom, double drums, outriggers, slightly used, just overhauled, like new.
Immediate Shipment—Attractive Price.
GREY STEEL PRODUCTS CO.
111 Broadway, New York, N. Y.

CRANE

100-ft. Radius, American Hoist and Derrick Cos., 60-ft. lift. Six ton capacity. Complete with Hoisting Engine and fittings. (Excepting guy lines and cables). This machine is new—never erected, perfect condition. Bargain, at less than 1/3 of its value.

SPECIALTY ENGINEERING CO.
Allegheny Ave. & Trenton Ave., Phila.

FOR SALE

LOCOMOTIVE CRANE

Osgood "29" Mounted on standard railroad trucks for clamshell or crane service, 40-ft. boom.

THE LAKEWOOD ENGINEERING CO.
Cleveland, U. S. A.

WE OWN AND OFFER

CRANES

Cranes are standard, 25 to 30 ton, Link Belt, locomotive crane tops, mounted on all steel heavy Gantry sub-structure. Full revolving, steam operated, Mass. std. boilers, self-propelling, 20-ft. gauge, 90-ft. booms (52-ft. with 38-ft. center section), 22-ft. clearance in heighth.

Cranes all perfect condition, like new.
Immediate Delivery

B. M. WEISS

1324 Widener Bldg., Philadelphia, Pa.

LOCOMOTIVE CRANES

1—Brownhoist 15-ton Locomotive Crane, 8-wheel, Built 1919.
1—O&S 18-ton Locomotive Crane, 8-wheel, bucket-handling.
1—O&S 15-ton Locomotive Crane, 8-wheel, bucket-handling.

LOCOMOTIVES

1—17x24 in. Baldwin 6-wheel shifter, built 1907; 180 pounds working pressure.
1—18x24 in. Brooks 6-wheel shifter, 160 pounds working pressure.
1—28-ton Standard Gauge Shay Geared Locomotive.
10—36 in. Gauge Electric Storage Battery Locomotives. Also other Locomotives; Steam Shovels, Steel Rails, etc. Complete list sent on request.

Birmingham Rail & Locomotive Co.
Birmingham, Ala.

Clyde Crane

New, Never Used

Will handle material, can be used as dragline or hoist. Write for bargain price.

STROUD & COMPANY
Omaha, Nebr.

FOR SALE

Gantry Tower Cranes

New
Electrically Operated
78-ft. high—65-ft. boom—18-ft. between rail centers.
Capacity 40,000 lbs.

POTTSTOWN STEEL COMPANY
Douglassville, Pa.

Step Out With Me—

and look at my BIG BROWNHOIST Locomotive Crane Dragline at Chicago. A real money maker for someone—you perhaps. I have priced it at less than half the manufacturer's price. Used only 4 months. 100 ft. boom, full revolving; mounted on two 8-wheel R.R. trucks, spaced 24 ft. between centers. Self-propelling.

Other Money Makers

A rebuilt INDUSTRIAL, 8-wheel, M.C.B., capacity at 12-ft. radius 25-TONS with outriggers, 20-TONS without outriggers; new 50-ft boom; new A. S. M. E. boiler; 1 YEAR'S GUARANTEE. Location: Bay City, Mich.

A 20-TON INDUSTRIAL 8-wheel M.C.B., double drums, 50-ft. boom, 1½-yd. clamshell bucket. Fine condition. Location; La Salle, Ill.

A 25-TON BROWNING No. 8, 8-wheel, M.C.B., equipped with double drums, 52-ft. boom and turbo-generator. Location; Bay City, Mich.

A Model E, 25-TON OHIO, 50-ft. boom, 8-wheel M.C.B., double drums with 7½-kw. generator. New A. S. M. E. boiler. Location; Franklin, Pa.

A large 14-ft. gage McMYLER, 64-ft. boom, 2½-yd. clamshell bucket, Ohio-Massachusetts boiler, double drums. Excellent working condition. Location; Port Huron, Mich.

A 10-TON capacity McMYLER, 50-ft. boom, 1½-yd. bucket, double drums, A.S.M.E. boiler, 4-wheel, std. gage. Can be made 8-ft. gage. Location; Port Huron, Mich.

A 20-TON BROWNHOIST, 8-wheel, M.C.B. 40-ft. boom. Location; Chester, Pa.

A 12-TON O. & S., 8-wheel, M.C.B., single drum, 54-ft. boom. Location; St. Louis, Mo.

2 OSGOODS, single drum, 4-wheel R.R. trucks, 35-ft. booms. Location; Lincoln, N.J.

An OSGOOD, single drum, 4-wheel R.R. trucks, 40-ft. boom. Location; Kingston, N.Y.

A 10-TON INDUSTRIAL, 4-wheel, single drum, 35-ft. boom. Old machine, but in good operating condition. Priced especially low. Location: Pottstown, Pa.

A 15-TON BROWNING, 8-wheel, M.C.B., 40-ft. boom, single drum. Priced low for quick sale. Location: Pottstown, Pa.

Brand New—To Rent

1—17½ Ton INDUSTRIAL
1—20 Ton OHIO

Philip T. KING

"The Crane Man"

30 Church St., New York

HOLT TRACTORS

(caterpillar)
12-TON and 10-TON
Both in Fine Overhauled Condition
VERY CHEAP for QUICK SALE
CROCKWELL MINE & MILL SUPPLY CO.
907 Fed. Reserve Bldg., St. Louis

Some Real Purchases

Immediate Shipment

1—20-ton McMyler Interstate Locomotive Crane.
1—10-ton McMyler Interstate Locomotive Crane.
2—Thew Traction Steam Shovels.
1—7x12 Saddle Tank, 24-in. Gauge Davenport Locomotive.
1—10x16 Saddle Tank, 36-in. Gauge Porter Locomotive.
1—65-ton Bucyrus Steam Shovel, 2½-yd. dipper.

Exceptionally Low Prices

Please Telegraph, Telephone or Write Us If Interested.

A. C. TORBERT

Continental and Commercial Bank Bldg., Chicago, Illinois.

STEAM SHOVELS

1—Model 37, on crawlers.
2—Type "B" Erie, on crawlers.
1—No. 18 Osgood, on crawlers, with crane attachment.
2—Type "B" Erie, on traction wheels.
1—Model 20 Marion.

LOCOMOTIVE CRANES

1—20-ton Industrial, on MCB trucks, with 42-ft. boom.
1—Byers Auto. Crane, on crawlers.

HOISTING ENGINES WITH BOILERS

1—7¼x10 D.C. three drum Mundy.
1—6½x12 D.C. three drum Mundy.
1—6½x12 D.C. two drum Mundy.
1—8½x10 D.C. two drum Lambert.
1—7½x10 D.C. two drum Lambert.
2—7 x10 D.C. two drum Lidgerwood.

HOISTING ENGINES WITHOUT BOILERS

1—9 x13 D.C. three drum National.
1—8½x12 D.C. single drum Lidgerwood.
1—9 x10 D.C. single drum Lidgerwood.
2—8¼x10 D.C. two drum Lidgerwood.
1—9 x12 D.C. single drum Pen Argyle.
1—10 x15 D.C. single drum Bacon.
1—12 x15 D.C. single drum Bacon.
1—8½x12 D.C. single drum Lambert.
3—7 x10 D.C. single drum Carlins.
1—6¼x 8 D.C. single drum Lidgerwood.

ELECTRIC HOISTS

1—3-drum Clyde 75-hp.,550-v. D.C. motor.
1—2-drum Thomas 50-hp.,220-v. D.C. motor.
3—2-drum Thomas 30-hp.,220-v. D.C. motor.
3—2-drum Thomas 30-hp.,220-v. A.C. motor.

SWINGING ENGINES

1—7 x8 American.
1—5½x8 Lambert.
1—4 x6 National.
1—4 x6 Mead-Morrison.

Derricks, Boilers, Pumps, Concrete Mixers, Road Rollers, Air Compressors.

Everything for the Contractor

Pittsburgh Machinery & Equipment Company
Fulton Bldg., Pittsburgh, Pa.

Repaired Equipment

Steam Shovels

2—Type "B" Erie, ¾-yd., traction wheel, standard booms, shop numbers 206 and 312.
1—Type "B" Erie, ¾-yd., traction wheel, high lift, shop number 914.
3—Model 28 Marions, ⅝-yd. dipper, traction wheels, shop numbers 3134, 3137 and 3229.
4—Model 60 Marion RR type. 2½-yd. dipper, shop numbers 1995, 1999, 2059 and 2372.
1—Model 70 Marion RR type, 2½-yd. dipper, shop number 2693.

Locomotives, Standard Gauge

1—18x24-in., 60-ton, 6-wheel Switcher with side tanks.

12-yard Standard Gauge Cars

20—26-ft. bed Western, air-dump.

36 in. Gauge Saddle Tank Locomotives

5—10x16-in. H. K. Porter, 18-ton.

Also a large stock of miscellaneous construction machinery including railroad ditchers and locomotive cranes. All the above equipment is located at our Pittsburgh shops where inspection can be made.

H. KLEINHANS COMPANY

Union Trust Building, Pittsburgh, Pa.

STEAM SHOVELS

Thew No. 0 Traction, Electric.
Erie B Caterpillar, ¾ yd., high lift.
Erie B Traction, ¾-yd., standard.
Erie B Traction, ¾ yd., high lift.
Marion 21 Caterpillar, ¾ yd.
Marion 31 Caterpillar, 1 yd.
Marion 28 Traction, ¾ yd., **attractive price.**
Marion 36 Caterpillar, 1½ yd.
Marion Railroad 41, 60, 61 and 70.
Bucyrus Railroad 70-C and 100-C.
Osgood Railroad 43, 69 and 73.
Osgood 18 Traction, ¾ yd., standard.
Large Revolving Stripping Shovels.

Cars—Locomotives—Cranes

W. R. WADDELL
50 Church St., New York
Tel.: Cortland 4873

A REAL BARGAIN

Model 92 Marion Steam Shovel

with 5-yd. Dipper. Machine is as good as new. Three years old, but handled only about 200,000 yards soft material.

F. MAYER
Monadnock Bldg., Chicago, Ill.

FOR SALE

Two—4 cylinder Reo Motor 15 Passenger Busses

Mounted on Standard Steel RR Wheels and Axles

Also a 13-foot Long Box Car Trailer

All in Good Condition

A very handy, convenient and economical outfit for a small railroad

Also the original tires and axels to readjust for general road work

WRITE FOR PHOTO AND PARTICULARS

Bargain for Quick Transaction

Hyman-Michaels Company
531 Peoples Gas Bldg., Chicago

STEAM SHOVEL

18-B Bucyrus, shop No. 2031.

DUMP CARS

24—3-yd. Double Truck, 24-in. gauge.
8—Camp Cars, standard gauge.

LOCOMOTIVES

2—8½x12 Davenport Geared, A.S. M.E. Boilers, 24-in. gauge, shop Nos. 1823 and 1824.

All of above equipment in first class condition.

Porter Bros., Norfolk, Va.

FOR SALE

USED CONTRACTORS' EQUIPMENT

SHOVELS

1—Erie Type B, ¾-yd., caterpillar tread, only moved 25,000-cu. yd. excavation, attachment; 1—36-ft. boom and 1-yd. clam shell bucket.
1—No. 3 Keystone Excavator, with skimmer and ditcher attachments. Rebuilt.

CRUSHER

1—13x30 Farrell Jaw Crusher, extra set jaws and flywheels, drive belts, line shaft, etc.

PAVERS

1—18-E Koehring boom and bucket, laid three mile road.
1—14-E, Lakewood, boom and bucket, laid five mile road.

Low Prices, Write for Information

Hagerstown Equipment Company
Hagerstown, Maryland

FOR SALE

NEW HAYWARD

CLAM SHELL BUCKETS

Class E

Sizes:

1 cu. yd. 1½ cu. yd. 1⅝-cu. yd.

At two-thirds of present prices
Immediate Delivery from Brooklyn Stock

MARVIN BRIGGS, INC.
167 Sixth St., Brooklyn, N. Y.

ALBERT PIPE SUPPLY CO.

Berry and North 13th St., Brooklyn, N. Y.

Special Offerings

Second Hand Standard Line Pipe

25,000 ft. 2 in. Pipe 9 cents ft.
25,000 ft. 3 in. Pipe 19 cents ft.
25,000 ft. 4 in. Pipe 26 cents ft.
50,000 ft. 6 in. Pipe 50 cents ft.
5,000 ft. 12 in. Pipe 50 lb. Pipe $1.25 ft.

F.O.B. cars Ohio, shipping point, good threads and couplings.

1000 tons ½ in. to 20 in. S. H. Black and Galv. Pipe
New threads and couplings.

NEW PIPE

1000 ft. 8 in. New Galv. 29 lb. Pipe $1.45 ft.
1500 ft. 16 in. New Bl. Steel Pipe ⅞ in. wall P. E. $3.00 ft.

400 tons New Black & Galv. Pipe ½ in. to 3 in. inclusive

Second-Hand and New

PIPE

¾ to 18 inch with threads and couplings.
Guaranteed for service.
Pipe up to 18-in cut to sketch.

Pipe & Contractors Supply Co.
3 Dover Street, New York City

SECOND-HAND PIPE

All Sizes.
Immediate Shipment
from Stock.
Right Prices.

J. SAVESKY'S SONS
Marion, Ind.

Second Hand **PIPE** **Guaranteed Retested**

Wrought Iron or Steel. Straight lengths 16 ft. and over, with new threads and couplings. Also pipe cut to sketch. Large stock always on hand for prompt shipment. Get our prices.

LINK PIPE & SUPPLY CO.
Ferry and Foundry Sts., Newark, N. J.

Established 1904

ALBERT & DAVIDSON Corporation

FOR SALE Second-Hand and NEW

PIPE

Large Stock All Sizes Threaded and with Couplings Also Cut to Sketch

256-264 Oakland Street, Brooklyn, N. Y.

WROUGHT IRON AND STEEL PIPE

New and second-hand. With new threads and couplings. All sizes from ⅛ to 12 in. Also cut to sketch.

DAVIDSON PIPE & IRON CORP.
436-40 Kent Ave., Brooklyn, N. Y.

PIPE **SECOND HAND**

With new threads and couplings; also cut to sketch.

PFAFF & KENDALL
Ferry & Foundry Sts.. Newark, N. J

FOR SALE

HEAVY PIPE

75-tons New Black Special Extra. Plain ends. Long lengths.
Approximate dimensions are 4½-in. I.D., 5⅝-in. O.D., weighing 24½ lbs. to foot.

FLOWER CITY PIPE & IRON CORP.
P.O. Box 558, Rochester, N. Y.

FOR SALE

Cast Iron Water Pipe

1200 ft., 8 in., Class B bell and Spigot. *Good as new. Immediate shipment.*

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40-ton, 8 wheel. 160 lb. steam working pressure. Air brakes. Reported by inspector in good operating condition. Price $4,000 f.o.b. Newton Falls, N. Y.

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Austin O Trencher, gasoline, 22 to 42 in. by 18 ft.
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First Class Relayers

Subject to Inspection at Destination for Prompt Shipment

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We carry in stock rails from 50 to 90 per yard.

Rails

Relaying rails and switches of various weights in stock at our Chester, Pa., yard and other points.

Also let us quote on your requirements for locomotives, locomotive cranes, cars and other items of railway equipment.

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COMMERCIAL TRUST BUILDING
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RAILS and CARS

150 tons 70-lb. section.
185 flat cars, 36 ft. to 40 ft., capacity 60,000 and 80,000 lb.
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All standard gauge, air and hand brakes, overhauled, acceptable to railroads, also interchange service.

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HARRY BENJAMIN EQUIPMENT CO.
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75 lb. Relaying Rails

Priced to move promptly.

Delivery—Any point on the line of the St. Louis Southwestern Railroad in Texas, Louisiana, Arkansas, Illinois or Missouri.

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STACKED READY FOR IMMEDIATE LOADING

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Second Hand Portable Track

5000 ft. 24 in. 20 lb.

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Additional Searchlight Ads on bottom of opposite page

Volume 90 New York, June 28, 1923 Number 26

Engineering News-Record

New York
M. N. BAKER
F. E. SCHMITT
C. S. HILL
R. K. TOMLIN

A CONSOLIDATION OF ENGINEERING NEWS, ENGINEERING RECORD, AND THE CONTRACTOR

E. J. MEHREN, *Editor* FRANK C. WIGHT, *Managing Editor*

Chicago
W. W. DE BERARD
E. E. R. TRATMAN
San Francisco
N. A. BOWERS

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How One Man Landed a Job

THERE are more ways than one to use "Engineering News-Record." Here is the story of how the paper helped a construction foreman locate a job in California:

"ONE DAY, while I was working for the —— Construction Co. in Massachusetts as a concrete labor foreman, I felt like going away some place. I told the superintendent that I wanted to go away but he did not want to believe that. However, next morning, instead of going to work, I took the train for Boston.

"After two days in Boston I would have had some work but thinking that I had worked for the —— Construction Co. for about 15 years, beginning as a water boy and becoming a boss, and not wanting to go back, being ashamed to as I left there without reason, I thought I would go to Los Angeles for the winter. I telephoned the Boston office to tell them that I was leaving for Los Angeles and they asked me if I was going into motion pictures and I answered that I was going to California for a vacation, so I took the train for Los Angeles.

"WHEN I arrived at Chicago I opened my suit case and found *Engineering News-Record* and saw that they were doing more concrete work in San Francisco than in Los Angeles, so I took the train for San Francisco, and as soon as I arrived there and stepped out of the ferry building, I saw that they were building a 16-story office building. I went to see the superintendent. I told him I always had worked as boss and that I was looking for work and he told me that I could go to work at once as a stripping foreman.

"With best regards to *Engineering News-Record* that I have a very nice job, I beg to remain,

"Yours truly,
"—— ——."

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MEAD-MORRISON

MOTOR TRUCK WINCH

hauled this 26-ton boiler more than 3 miles over winding, hilly roads, and lowered it into a pumping station.

Mead-Morrison Vertical Capstan Winches are safe, sure, silent, compact. They load, move and haul a surprising variety of loads and make money for their owners by *letting the engine do the work.*

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MANUFACTURING COMPANY
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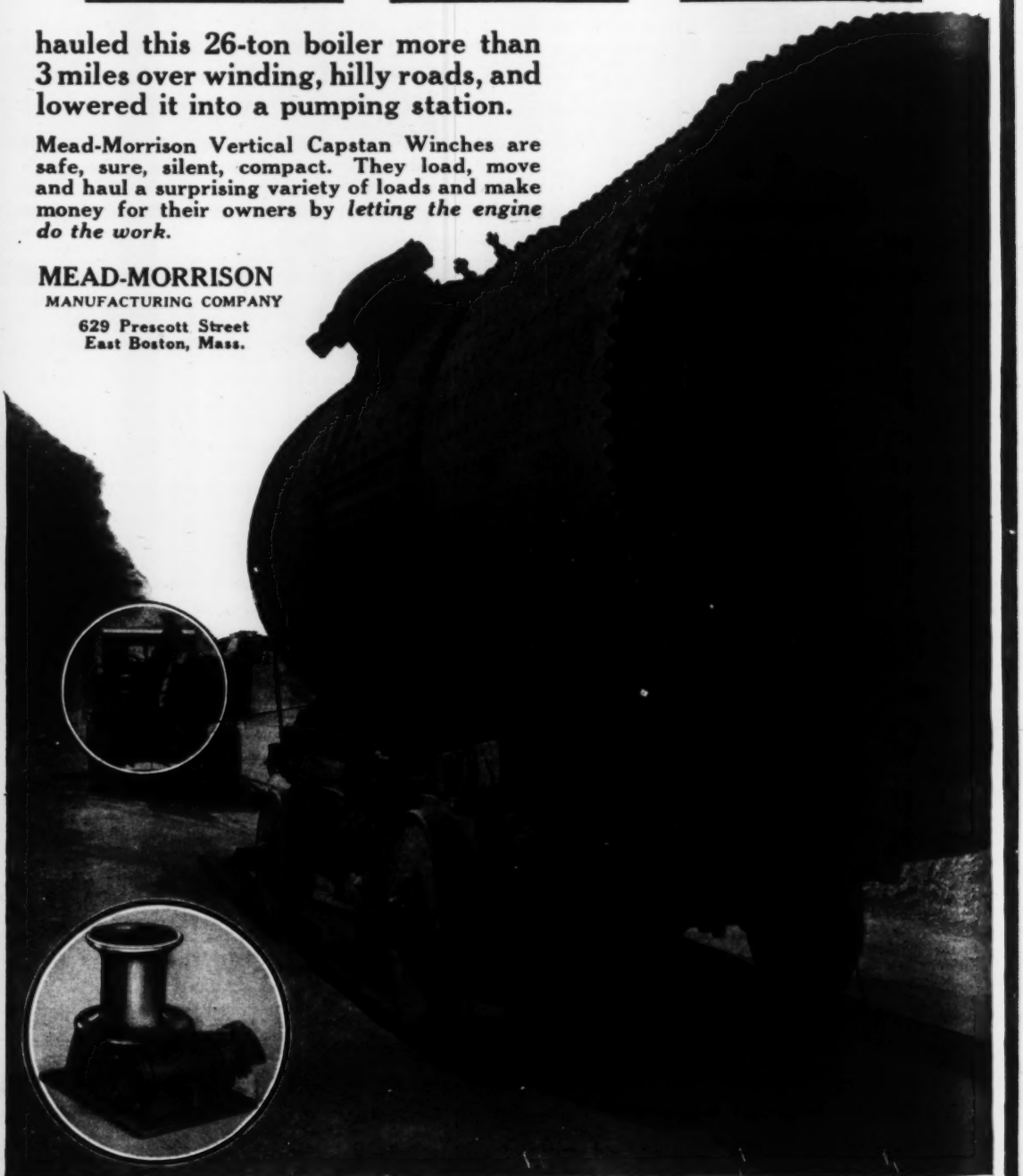

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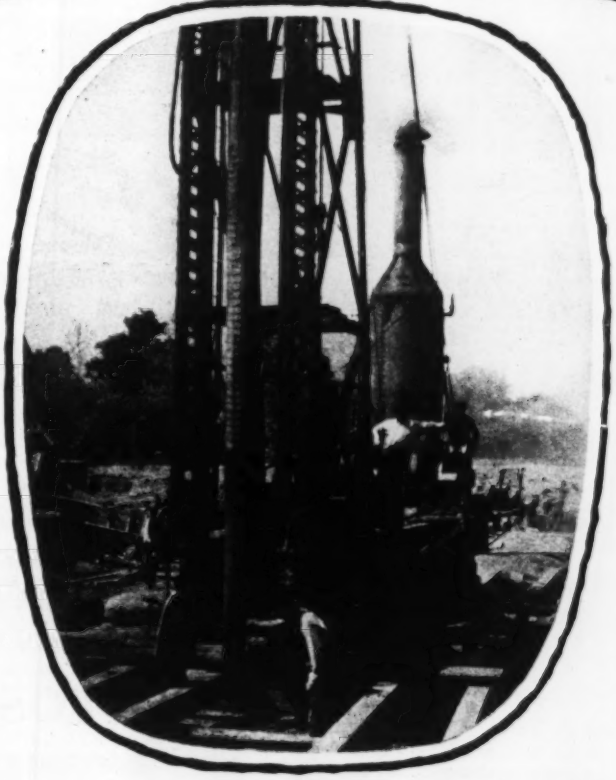

The Architect or Owner who wants to be absolutely certain that every Concrete Pile will be perfect insists on such piles being driven by the famous RAYMOND Method, using a spirally reinforced steel shell that is left in the ground.

RAYMOND CONCRETE PILE COMPANY

New York, 140 Cedar Street Chicago, 111 W. Monroe Street

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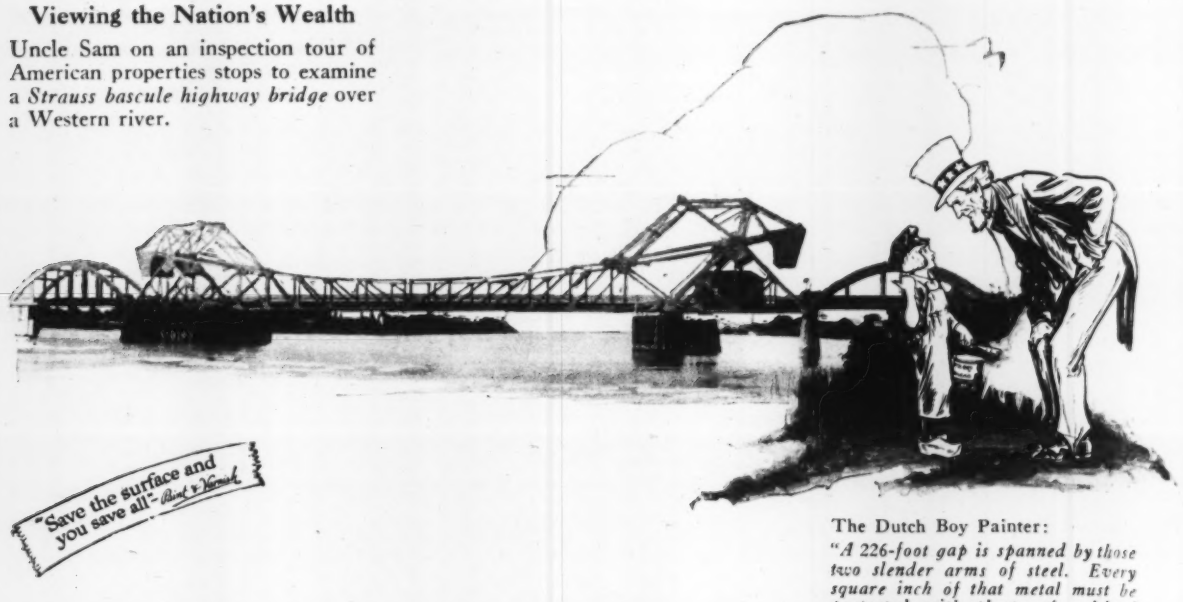
"A form for every pile—A pile for every purpose"

Viewing the Nation's Wealth

Uncle Sam on an inspection tour of American properties stops to examine a *Strauss bascule highway bridge* over a Western river.



The Dutch Boy Painter:
"A 226-foot gap is spanned by those two slender arms of steel. Every square inch of that metal must be protected with plenty of red-lead paint. Otherwise, rust will get in its work of destruction. Red-lead is the surest, safest protection against corrosion."

Closed to shipping— but wide open to corrosion

UP and down these balanced levers smoothly swing. They are strong. The engineer has provided for every stress and strain.

But if this bascule construction is to *remain* strong, each square inch of steel must be protected against rust. Each square inch of steel must be kept covered with good paint.

For many years red-lead has been recognized as metal's most effective defense against corrosion. Extensive tests have been made under all possible conditions. But all research only emphasizes the rust-resisting qualities of red-lead.

Because it is pure red-lead, Dutch Boy Red-Lead supplies complete protection to all classes of metal construction and equipment. It is specified by name because of its *known* standard of quality.

Dutch Boy Red-Lead gives a tough, elastic covering that expands and contracts without cracking. It sticks tight to clean metal and does not flake off or scale. It has unusual spreading power. A given quantity will cover more surface than the same amount of most other paints.

You can get Dutch Boy Red-Lead in paste form and as a liquid ready for the brush. For shop painting and priming coats the straight, untinted red-lead should be used. The *liquid* comes also in browns, greens and black for finishing coats. The untinted *paste* can be tinted to any dark color.

Specify Dutch Boy Red-Lead by name. *There is no "or equivalent"!*

Write for Painting Helps No. 5.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Ave.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.

Dutch Boy Red-Lead

Detail representing the construction of fireproof flooring first used in this bank building erected in 1855. Iron joists, constructed from two curved sheets and two flat strips, riveted top and bottom, rested on iron girders. Above the joists corrugated iron sheets supported a concrete filling, over which was laid the wood flooring.

Three-Quarters of a Century!

THREE-QUARTERS of a century ago a broad-visioned architect specified riveted iron joists for the floors of this historic bank building. His specification originated the first light weight type of fireproof construction.

Previous to this time heavy structural steel forms had been deemed essential for permanent floors. The record of seventy-five years of service, however, has far more than justified this architect in his radical departure from former standards.

When this bank building was finally torn down to make way for a large and modern edifice, its floors were still found to be in perfect condition. The ravages of time and wear had in no way impaired or damaged them.

Science, too, within recent years has fully demonstrated the correctness of the theory upon which these floors were built—that fire-safety, durability and permanence are not dependent upon the weight and mass of the materials employed. And today thousands of buildings bear testimony to the growing popularity of this steel joist fireproof construction.

With the introduction of Truscon and National Steel Joists, the Truscon Steel Company has played a conspicuous part in the development of fireproof, permanent, yet light weight and economical flooring for all light occupancy buildings. Such flooring constitutes a saving, not alone in first cost, but in upkeep costs. It is crack-proof, vermin-proof and in every way suited to meet the ideals of present-day building.

If you are planning a home, office building, hotel apartment, store, school, etc., learn more of the safety, economy and durability of steel joist floor construction. Write today for detailed information and descriptive booklet.

TRUSCON AND NATIONAL STEEL JOISTS

TRUSCON STEEL COMPANY
YOUNGSTOWN, OHIO, U. S. A.

Warehouses and offices from Pacific to Atlantic.
For addresses see 'phone books of principal cities.
Canada: Walkerville, Ont. Export Div.: New York.

National Steel Joist Co., Massillon, Ohio

The great advance made in modern fireproofing is illustrated by this Truscon Steel Joist Floor Construction. Simple to install. Merely place the joists and apply the metal lath above for concrete and below for plastered ceilings. No fitting, no forms, no false work — no special equipment. Used everywhere for apartments, schools, stores, hotels, first floors of homes, etc.

At left—a CP-5 Rock Drill in operation. *Above—illustration showing the CP-5 Rock Drill.*

CP-5 Rock Drill— *a strictly one-man drifter*

THE CP-5 Rock Drill is a strictly one-man machine. It weighs from 35 to 60 pounds less than other heavy mounted-type drifters. It sets low in its cradle. It has no bothersome knobs. It insures quicker set-ups with less labor. It permits changing drill steel without affecting alignment. It works *with* the operator. For example, the hose stays close to the drill out of his way.

The CP-5 is proving indispensable for heavy drifting, cross-cutting and tunneling, because it combines the *speed* and *power* of heavier drifters, plus *light weight*, *ease of operation*, *durability* and *upkeep economy*.

In formations varying in hardness from slate to jasper, the CP-5 equalled the performance of 160-170-pound drifters. This performance record was made possible by certain outstanding features fully outlined in Special Publication 697. Request *your* copy today.

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B-20

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CHICAGO PNEUMATIC
Rock Drills

Most sections have only 150 to 200 days a year of good weather suitable for outside work

Use the Shovel that WORKS EVERY GOOD DAY

"From actual experience, our own and others, we know the ERIE to be the most reliable shovel built, and lowest for upkeep cost— there is no comparison at all. The ERIE can excavate more yards per hour or per day than any other shovel we have had."— *Chas. Rossow Constr. Co. Buffalo, N. Y.* (Own 3 ERIES.)

BOTTOMLESS PIT
DON'T DUMP
YOUR MONEY!

LOST

BY GERHARDT F. MEYNE,
Vice-Pres. Assoc. Bldg. Contractors of Illinois.
(From Engineering and Contracting.)

Lost time is the bottomless pit into which more money than can be estimated has been dumped by contractors. A day free from delays will produce twice as much as an average day.

These contractors, and hundreds like them,

know better than to throw their money into the "lost-time" pit:

"I would advise any contractor who is in the market to buy an ERIE— because it stands up. If we were to get another shovel it would be nothing but an ERIE.

"We have had our ERIE for nine months and have spent about ten dollars for repairs; most of our work is heavy grading and large cellars."— *Daniel Haupert, Haupert & Lombardi Brooklyn, N. Y.*

"The ERIE cannot be compared to any other machine that I have seen or used. Before purchasing my ERIE I owned another shovel which I was obliged to sell because of its extremely high upkeep cost.

"Grading roads and digging sewers with my ERIE for a year and a half, my repair cost has been only $9.00."— *C. A. Johnson, Virginia, Minn.*

"I prefer the ERIE to any other shovel on the market today, and have had experience with 7 different ERIES in the past five years.

"Have found the ERIE the most reliable shovel, and its upkeep cost is the least. My ERIE has been grading roads, excavating for foundations and loading gravel from creek bed, often working under 3 feet of water."— *K. M. Clement, Boone, N. C.*

"We have worked our ERIE Shovel night and day for 4 months without losing more than six hours, and it is in as good shape as when we bought it— and we have had no expense worth mentioning. In our estimation the ERIE is the best shovel that is built."— *Swaney & Gilmore, Uniontown, Pa.*

YOUR UP-TO-DATE CONTRACTOR keeps cost records that really tell him something! He knows just how much it costs him per hour when a machine breaks down and stops his work— how much it costs in lost labor, unproductive overhead, *and loss of profits.*

That's why you see the big majority of successful contractors using ERIES. They know the dollars-and-cents value of equipment that is RELIABLE.

Up-to-date contractor wants service like this:

"One of our ERIES has been grading continuously for seven months without losing as much as two hours' total time. The ERIE is the best shovel we have ever used; it is the most reliable and has the lowest upkeep cost."— *Robert G. Lassiter & Company, Norfolk, Va.* (*Owners of 6 ERIES.*)

One letter like this means nothing: *five or six* letters like this do not mean very much. But when you read and hear HUNDREDS of such statements by contractors — all telling of this same kind of service from ERIE Shovels and Cranes— then it is wise to profit by their expERIEnce!

Actual service records prove that ERIES have only 1-3 as much repair expense, AND MAKE A CORRESPONDING SAVING IN WORKING TIME.

We will be glad to show you hundreds of letters like those at the left— written by successful contractors who have had years of experience with different shovels and cranes. Also, we can send you many carefully checked records of upkeep cost.

Keep your money out of the "lost-time" pit. Consider the facts, and you will be sure to "buy right." Drop us a line for the "Upkeep Cost Record Book."

ERIE STEAM SHOVEL CO., Erie, Pa., U. S. A.

Incorporated 1883; *formerly* BALL ENGINE CO. Builders of ERIE Steam Shovels and Locomotive Cranes
Branch Offices: Boston, New York, Philadelphia, Pittsburgh, Chicago
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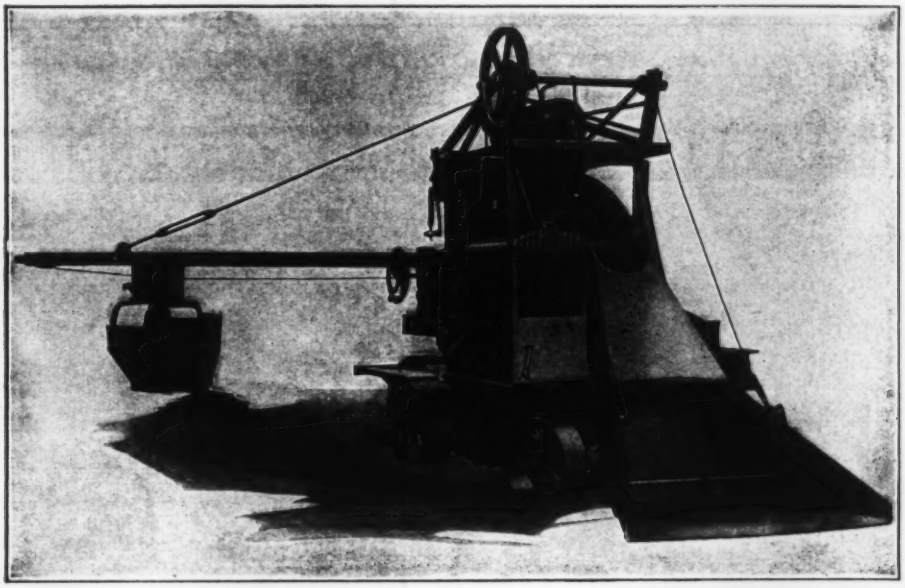

Performance sells this Paver
for instance–

March 1922 a Southern road contractor bought a Ransome 10-E Paver. Its performance made such an impression on the contractors in his locality that inside of five months *seven* had followed his example and become Ransome owners.

And the same thing is happening this year in other parts of the country. The Ransome Paver out on the job is selling the Ransome Paver back in the plant at Dunellen. The price is right—the upkeep low, and the paver *delivers the goods.*

You'll want to get posted on this Ransome 10-E Improved Paver. We will be glad to send complete information.

5113

Without obligation on my part, please send me information on:—
Building Mixers, sizes 4-S__; 7-S__; 10-S__; 14-S__; 21-S__; 28-S__; 56-S__. Driven by Belt__, Steam__, Gasoline__, Electric__
Paving Mixers, sizes 7-E__; 10-E__; 14-E__; 21-E__. Concrete Chuting Plant for structure__ft. long by__ft. wide by__ft. high.

*NAME*_____ *ADDRESS*_____

RANSOME

Ransome 10-E PAVER

RANSOME CONCRETE MACHINERY CO.

1750 Second Street, Dunellen, N. J.

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Brownhoist Builds

Apron Conveyors, Bucket Elevators, Chain Conveyors, Belt Conveyors, Locomotive Cranes, Buckets and other handling equipment.

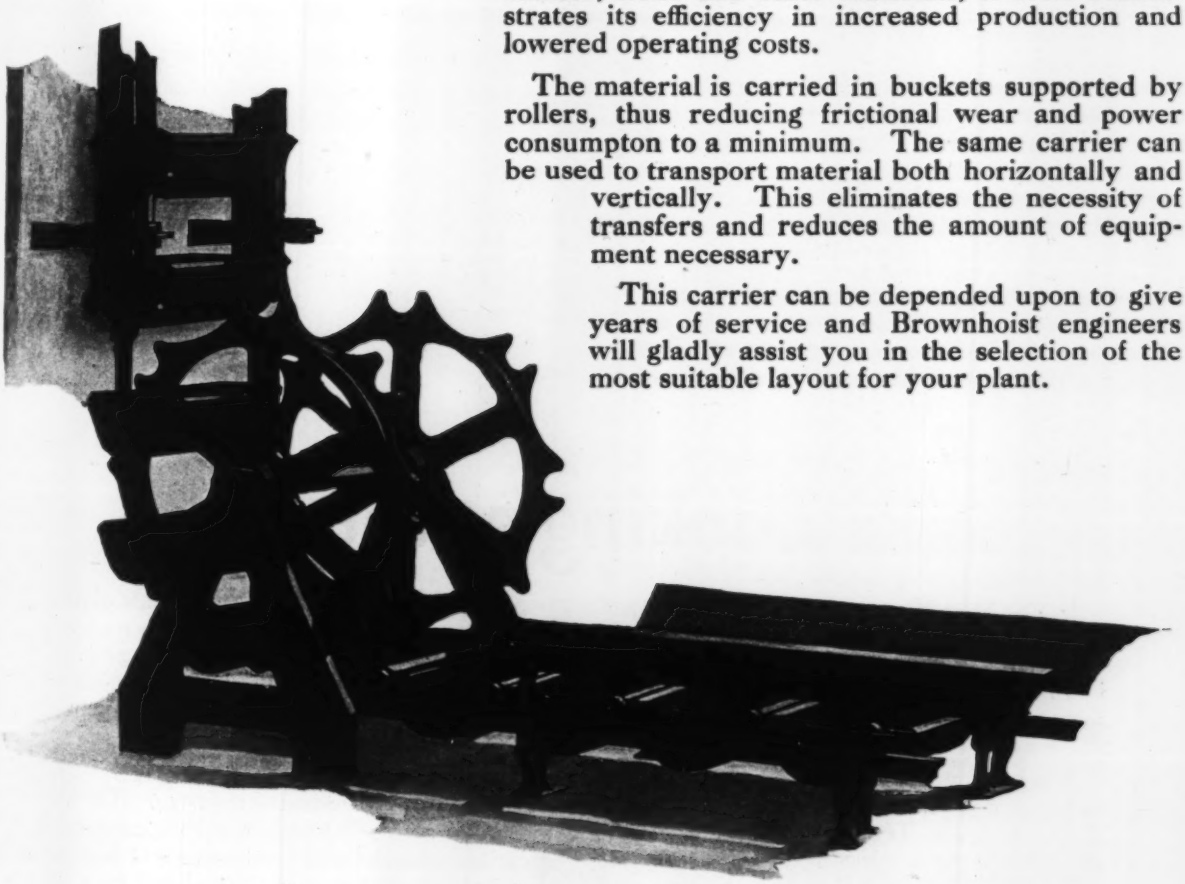
Literature on Request.

Of the utmost importance in choosing a conveyor system is the ability of the equipment to perform its work, efficiently and continuously, year after year, with low maintainence and operating cost. Shut downs for repairs must be few and far between and power consumption must be low.

The Brownhoist pivoted bucket carrier fulfills every requirement for this type of equipment unusually well. In the handling of coal, ashes, cement clinker, stone and other materials, it soon demonstrates its efficiency in increased production and lowered operating costs.

The material is carried in buckets supported by rollers, thus reducing frictional wear and power consumpton to a minimum. The same carrier can be used to transport material both horizontally and vertically. This eliminates the necessity of transfers and reduces the amount of equipment necessary.

This carrier can be depended upon to give years of service and Brownhoist engineers will gladly assist you in the selection of the most suitable layout for your plant.



The Brown Hoisting Machinery Co., *Cleveland, Ohio*

Branch Offices: New York, Chicago, Pittsburgh, San Francisco, New Orleans

BROWNHOIST

MATERIAL HANDLING EQUIPMENT

Like Looking at the Sun

If you were to look into one of the great rotary kilns in a cement mill, you would see only a glare of light so intense that it would be like looking at the noon-day sun. For a few moments after, you would be unable to see anything.

But borrow the workman's colored goggles to protect your eyes, and peer through the peep-hole again. Then you will see a tornado of coal—of gas or spraying oil—bursting into a sheet of sun-white flame. Into the other end of the kiln flow the finely ground limestone and clay—the materials for cement.

In their three-hour journey through this inferno, the materials undergo many changes. Moisture and gases are driven off as the rotation of the kiln tumbles the materials about, subjecting them to gradually increasing heat until the sun-white flame half melts the powder and it rolls into glass-hard clinker. This clinker, an entirely new chemical compound, when pulverized becomes portland cement.

Scientific control marks every stage of the burning process. Producing the required 2,500 to 3,000 degrees Fahrenheit of heat consumes great quantities of fuel—30 pounds of coal, or its equivalent, for each 94-pound sack of cement.

For the whole cement-making process, the consumption of coal is approximately 50 pounds a sack—more than half a ton of coal to a ton of cement.

PORTLAND CEMENT ASSOCIATION

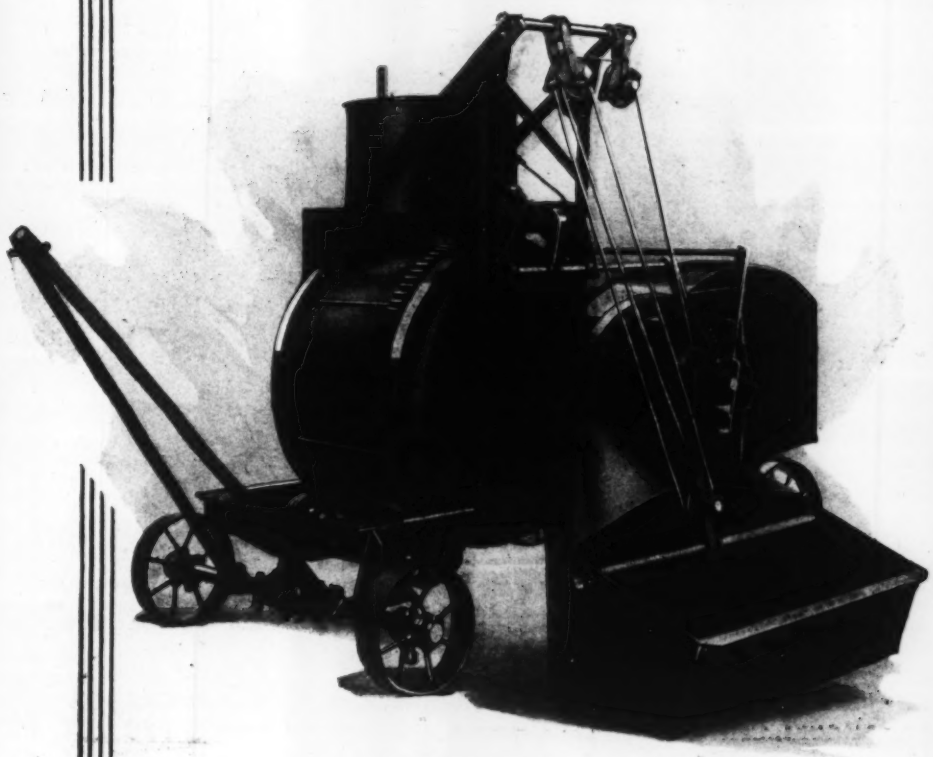
A National Organization to Improve and Extend the Uses of Concrete

Atlanta	Des Moines	Los Angeles	Parkersburg	San Francisco
Boston	Detroit	Milwaukee	Philadelphia	Seattle
Chicago	Helena	Minneapolis	Pittsburgh	St. Louis
Dallas	Indianapolis	New Orleans	Portland, Oreg.	Vancouver, B.C.
Denver	Kansas City	New York	Salt Lake City	Washington, D. C.

THE MIXER YOU HAVE WAITED FOR

AUSTIN — MOVES THE EARTH — MIXES THE CONCRETE

THE AUSTIN DRUM MIXER



The Austin Drum Mixer with Side Loader

There is a difference in these Austin Drums, though they may resemble other drum type mixers. This difference is in the mixing action and the unusual enduring qualities.

In place of the usual "V" spreaders and short blades we use long blades. In charging the mixer these blades carry the material away from the charging side almost instantaneously. This provides fast charging and prevents clogging. While mixing, the blades aid in carrying the material up and dropping onto the discharge spout. The inverted spout throws the material back to the charging side of the mixer. This induces a mixing action, supplemented by a remixing action that shortens the time required to secure a thoroughly mixed batch.

The result is more batches per hour, more jobs per season and greater profit at the completion of the job. *Catalog DM-3 sent on request.*

AUSTIN MACHINERY CORPORATION

3500 Dorr Street

Toledo, Ohio

AUSTIN BUILT CONTRACTORS' EQUIPMENT

CUBE MIXERS CUB-HEX MIXERS CUBE PAVERS DRUM PAVERS ASPHALT PLANTS TRENCH MACHINES TRENCH WIDENERS DITCHERS BACKFILLERS DRAGLINES CRANES SHOVELS SKIMMERS CLAMSHELLS WAGON LOADERS SUBGRADERS CONCRETE ROAD TAMPER AND FINISHER.

Inserts For All Purposes

CARRIED IN STOCK

DAYTON No. 5
Malleable Iron

"Y" SOCKET
Malleable Iron

SLOTTED INSERT
Pressed Steel
12-in., 18-in., 24-in., 36-in.

OTHER
HAVEMEYER PRODUCTS

TY-CHAIRS
BAR-TYS
EASEL-CHAIRS
SLAB BAR-SPACERS
BEAM BAR-SPACERS
HY-CHAIRS
X-TENSION CLIPS
CURB-BARS
STAIR-TREADS
WALL-TYS

CONCRETE STEEL COMPANY

42 Broadway, New York

Warehouses and Fabricating Shops

PHILADELPHIA
BIRMINGHAM
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YOUNGSTOWN
WASHINGTON
HOUSTON
SAN ANTONIO
DENVER, COLO.
LOS ANGELES, CAL.

Sales Agencies with Stocks in other Principal Cities

A Haiss Truck Loader

Is a Flexible Piece of Equipment

For Loading Trucks at Siding

Digging and Loading in Sand or Gravel Bank.

Loading at Quarry Stockpile.

Loading in Material Yards.

Loading to truck, car or truck-tractor at roadside storage.

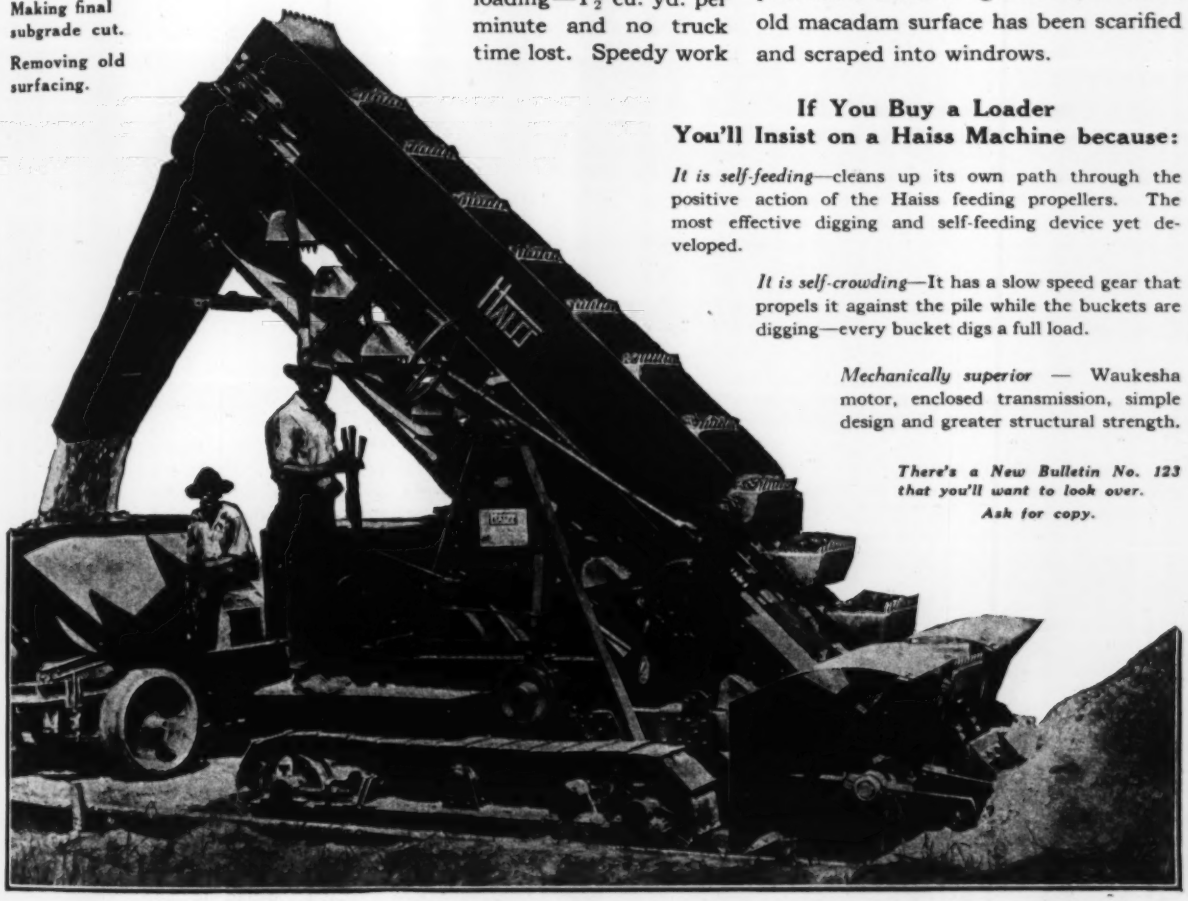
Making final subgrade cut.

Removing old surfacing.

When you buy a Haiss Truck Loader you are not tying up money in a one-purpose machine. You can apply its economies on any one of a number of jobs.

The big job is stockpile loading—1½ cu. yd. per minute and no truck time lost. Speedy work but only ¼ the cost of hand shoveling.

Remember it is not merely a bucket loader—it digs, not as a steam shovel or for steam shovel work, but entirely practical in sand or light earth, or where old macadam surface has been scarified and scraped into windrows.



If You Buy a Loader You'll Insist on a Haiss Machine because:

It is self-feeding—cleans up its own path through the positive action of the Haiss feeding propellers. The most effective digging and self-feeding device yet developed.

It is self-crowding—It has a slow speed gear that propels it against the pile while the buckets are digging—every bucket digs a full load.

Mechanically superior — Waukesha motor, enclosed transmission, simple design and greater structural strength.

There's a New Bulletin No. 123 that you'll want to look over. Ask for copy.

The Geo. Haiss Mfg. Company, Inc., 140th St. and Rider Ave., New York

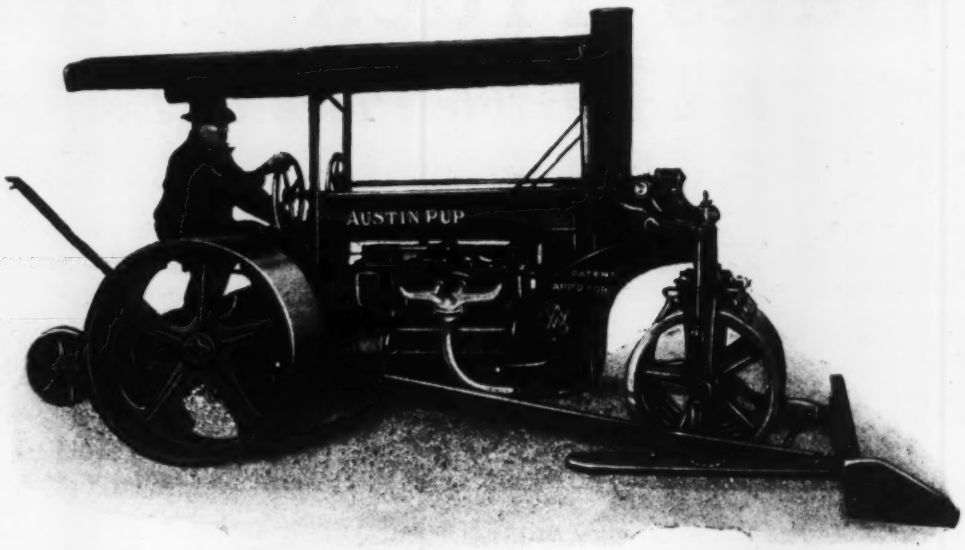
Established 1892 **Representatives throughout the world**

Millars' Timber & Trading Co., London, British Representatives

HAISS

MATERIALS HANDLING EQUIPMENT

CLAM SHELL BUCKETS



The Pup Complete with Maintainer and Scarifier

The Austin Pup

Weight: 3, 3½ or 4 tons

THE AUSTIN PUP is the undoubted sensation of the road building and maintenance fields. Exhibited for the first time at the Chicago Good Roads Show in January, where it attracted far more than its proportionate share of attention, it has already become one of the most popular tools with contractors and public officials of all classes from State to Township and City to Village. The reason for such universal popularity is not hard to discover; the Pup adapts itself perfectly to a surprisingly wide range of work and clearly surpasses older methods in every instance, as is shown by the following excerpts from a few of the letters we have received from enthusiastic users.

C. M. Upham, State Highway Engineer of North Carolina, writes that "The Austin Pup Roller that we are utilizing in our experimental work is giving exceptionally good results. We are also using the Pup Roller in rolling surface stone on bituminous macadam maintenance. We find that this machine is very handy in working out many of these details."

From Ritchie & Ramsey, Topeka, Kansas, Contractors, we learn that "The Pup has more than lived up to our fondest expectations. Frank Bills, who has always been our roller man, and who has operated about every piece of machinery that a street or road contractor could possibly use, states that the Pup, from a standpoint of economy in operation, simplicity of design and diversity of uses to which it can be put, exceeds every piece of contractor's machinery he has ever seen."

Rolling Subgrade

PRICE AND SERVICE are two of the Pup's most attractive features. By utilizing the Fordson tractor to furnish the motive power, we have taken advantage of Ford's costs which are below anything known in the world because he builds his goods by the hundreds of thousands; and the first cost of the Pup is, therefore, considerably below what it would be if we were to build it complete. An arrangement has also been made whereby the Ford Motor Company, of Detroit, pays the local Ford dealer, in the territory where the Pup is delivered, a commission on the Fordson part of the outfit, so the Pup owner receives dealer service and prompt deliveries of Fordson parts from the Ford dealer in addition to the service maintained by our numerous warehouses and service stations.

Planing a Rough Mountain Road

Roller and Road Maintainer

Furnished With or Without Maintainer and Scarifier Attachments

WEST VIRGINIA adds this testimony: "The pictures are of the Pup working on one of the hardest propositions I think I ever saw in West Virginia. The ruts on the road were anywhere from one foot to eighteen inches in depth, but the little Pup waded right in and sure did plane the road down. One of the tax-payers passing by while the machine was working remarked that it was worth more than any other road machine he ever saw on any work; that all the work that they had done with the road grader this year was wasted money. Made four trips over a little more than a mile of road and reclaimed it from practically an impassable piece of road to one over which autos could drive with comfort, with about six hours work."

F. E. Ross, City Engineer of Jefferson, Mo., says that "The Pup has been in use almost every working day since we received it and is giving the best of satisfaction.

"It has abundance of power. We have used it on grades as high as 12 per cent and have never had to use low gear. We took the roller to the city park to roll the golf links. On the way to the park it had to climb a 20 per cent grade on a gravel road. As the grade was so steep that the roller would spin its wheels, we put a few lugs on each wheel, put the machine in high gear and went over the top.

"Before buying the roller we had all patches tamped. The tamping was the most expensive part of the repair work, wore the men out and took about three-fourths of their time. Since we received the roller, the same crew is doing about four times as much work as before, is doing 100 per cent better work, and at a saving sufficient to more than pay for the roller this season."

A special circular tells the whole story of the Pup Roller and Road Maintainer, and its many uses. Write for a copy today.

The Austin-Western Road Machinery Co.

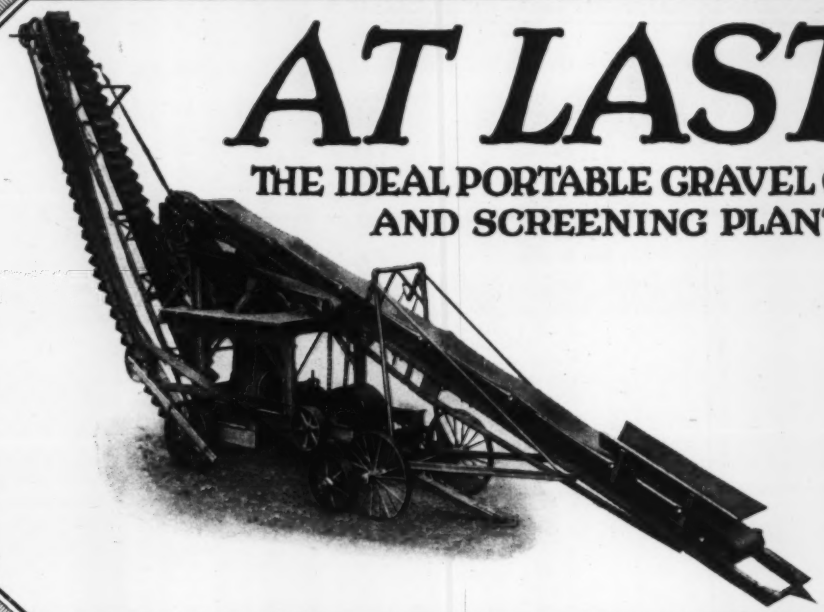
Factories and Home Office Chicago

Warehouses and Service Stations in all Principal Cities

On Patchwork

AT LAST!

THE IDEAL PORTABLE GRAVEL CRUSHING AND SCREENING PLANT



GRAVEL is brought from the pit in wagons, drags or fresnos, and dumped through a trap directly upon the conveyor, which in turn deposits the material upon a grizzly screen. The undersized material drops through the bars of the grizzly upon a chute leading directly to the elevator, while the oversize rolls down the bars into the crusher.

Nos. 2, 3 and 4 Austin Gyratory Crushers can be mounted on trucks and furnished with rigid or folding elevators of the required lengths, and gravel conveyors ranging in length from 30 feet to 50 feet. Optional equipment includes a revolving screen mounted on a portable bin.

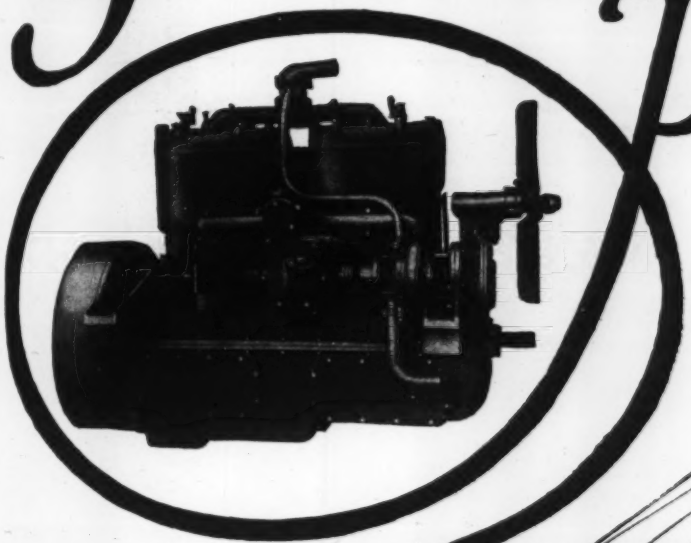
While moving from place to place, the elevator folds down over the crusher; the conveyor is disconnected from the crusher, and its lower end attached to a truck or wagon.

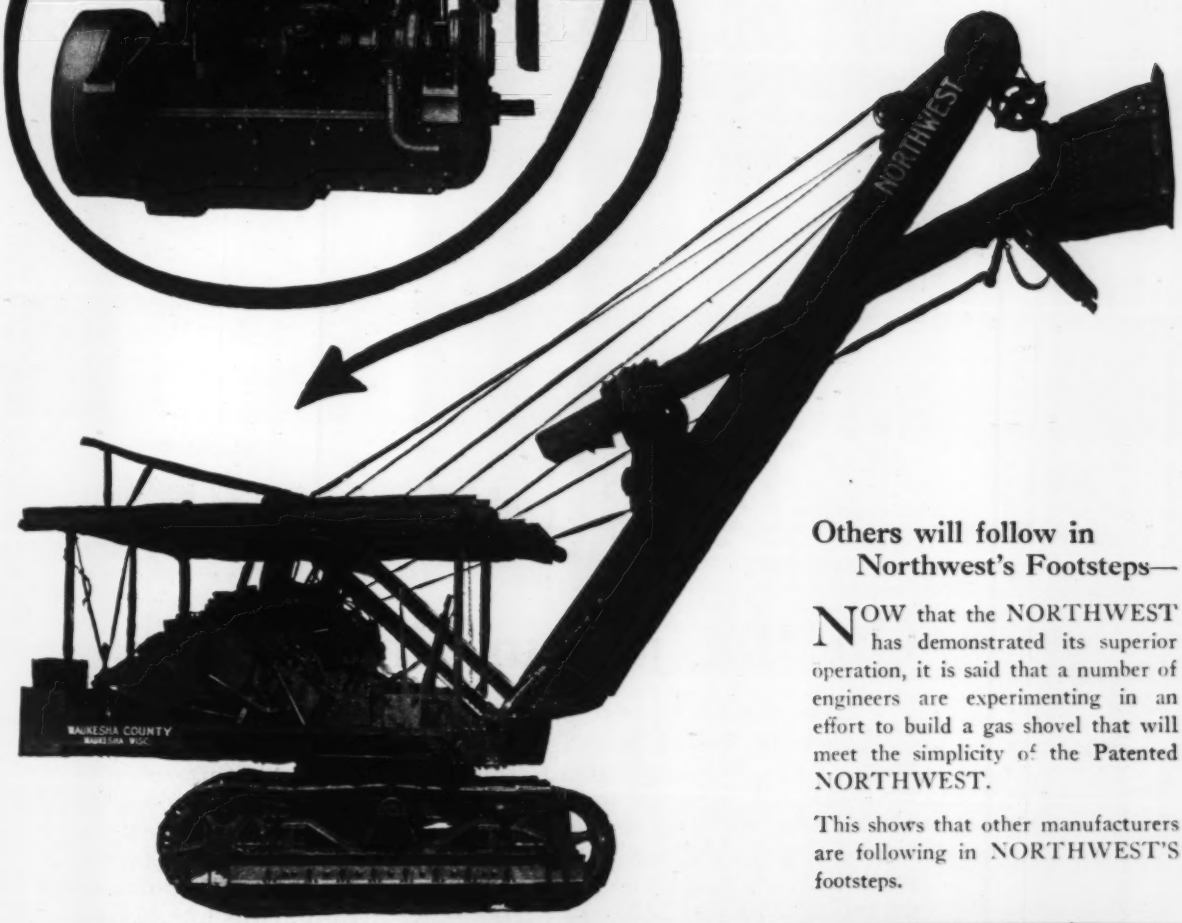
A special bulletin describing these portable plants in detail is just off the press. We would like to send you a copy. Ask for Portable Gyratory Crusher Bulletin "H"

AUSTIN MANUFACTURING CO.

New York · CHICAGO · San Francisco

Gasoline Power!





Others will follow in Northwest's Footsteps—

NOW that the NORTHWEST has demonstrated its superior operation, it is said that a number of engineers are experimenting in an effort to build a gas shovel that will meet the simplicity of the Patented NORTHWEST.

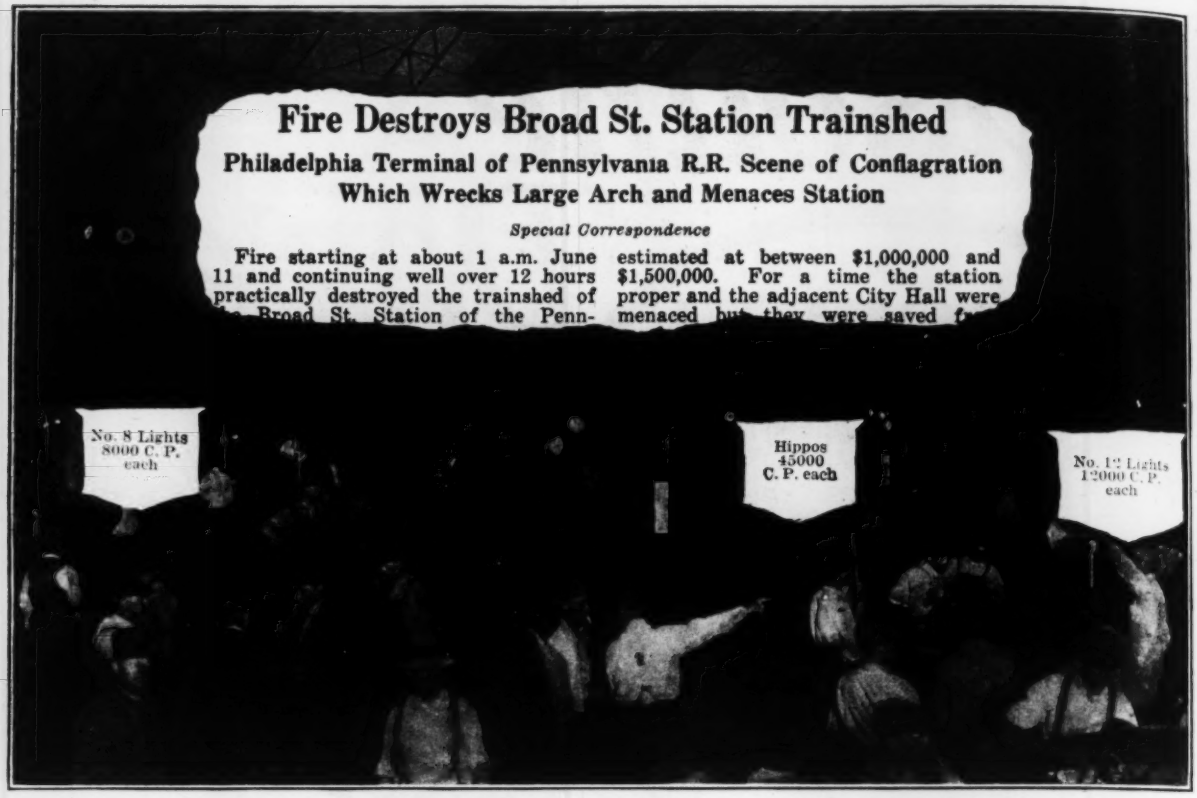
This shows that other manufacturers are following in NORTHWEST'S footsteps.

NORTHWEST ENGINEERING CO.
1227 Steger Building, CHICAGO

NORTHWEST

CRANE
DRAGLINE
SHOVEL

Gas or Electric


Fire Destroys Broad St. Station Trainshed
Philadelphia Terminal of Pennsylvania R.R. Scene of Conflagration Which Wrecks Large Arch and Menaces Station
Special Correspondence
Fire starting at about 1 a.m. June 11 and continuing well over 12 hours practically destroyed the trainshed of the Broad St. Station of the Penn- estimated at between $1,000,000 and $1,500,000. For a time the station proper and the adjacent City Hall were menaced but they were saved fr
No. 8 Lights 8000 C. P. each
Hippos 45000 C. P. each
No. 12 Lights 12000 C. P. each

THE MILBURN LIGHT

On the job in Philadelphia!

The ruins of the Broad Street Station trainshed had not quit smoking before numbers of Milburn Lights were on the job with the clean-up gang! Fifty Milburn lights were ordered at 2 p. m. (afternoon of the fire) and were on the job *that night*. Note the *batteries* of Milburns in the photo above. New platform construction work was begun at once—and the Milburn Lights helped to speed up the work. Here is another and striking instance of the dependability, quick-set up and efficiency of Milburn Lights—they are the lights to call upon in everyday work or in the big emergency. Operate on any kind of Carbide.

Send for Circular 21, or order a light on trial.
Warehoused everywhere

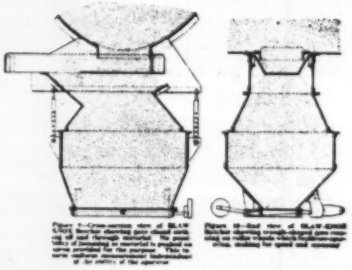
No. 8, over 8,000 candlepower. Burns 12 hours on 8 lb. of carbide. Costs 3c per hour

P. S.—The "Milburn Combination CUT-WELD Torch" is also being used on the job of dismantling the twisted steel frame-work.

The Alexander Milburn Company
1416-1428 W. Baltimore St.
Baltimore, Md.

SAND AND STONE STORAGE
Bucket equipped derrick for bin loading
Cement Car controlled by hoisting engineer from cement shed. No labor needed at mixer
GRAVITY MEASUREMENT Blaw-Knox Batchers
ONE MAN OPERATION
Cement Shed

The Same Good Quality of Concrete from Foundation to Roof



Uniform concrete—every batch exactly alike—automatically proportioned *to the cubic inch* by a BATCHERPLANT.

Labor-saving—*one man* strikes off and dumps accurately measured batches of sand and stone as fast as the mixer can handle them.

As the foundation for a central mixing and distributing system the all-steel BATCHERPLANT costs less to install; costs less to operate; is more accurate—and will speed up the pouring of your concrete to a far greater extent than any other device for storing and measuring. The BATCHERPLANT has 100% salvage value, and can be used on job after job.

Tell us about *your* job—we'll help you lay out your mixing and distributing system.

Blaw-Knox Road Building Equipment
Road Forms
Universal Forms
Truck Turntables
Batcherplants
Handy Houses
Clamshell Buckets
Cement Handling and Loading System

BLAW-KNOX COMPANY

601 Farmer's Bank Bldg., Pittsburgh, Pa.

New York · Baltimore · Birmingham · Chicago · Detroit
London, Eng.

BLAW-KNOX Batcherplant

Conveyors like this, built with rugged Rex Chain, are aiding in the production of Buick, Dodge Brothers, Ford, Nash, Paige, Studebaker and many other motor cars

Doing more work with less effort

Though facing a *decreasing* supply of labor the industries of this country now are being called on to satisfy an *increasing* demand for their products. Forced to make more units with fewer human hands, thousands of plants are meeting the issue through a broader use of labor-conserving methods and equipment. Conveyors built with Rex Chain are playing an important part in this new order of the day. Saving time and effort in the moving of materials from operation to operation, they are releasing labor for those tasks which must be done by hand, and are insuring larger outputs at lower cost. Probably there are places in your plant where Rex Chain, in conveyors or drives, can effect vital economies. Our engineers can show you how.

This powerful and long-lasting Rex Chabelco Steel Chain is delivering equal satisfaction in conveying materials and in driving rolls, drums, oil-well drills, screens, construction machinery and other equipment

CHAIN BELT COMPANY, MILWAUKEE

Branch Offices and Representatives in Principal Cities in the United States and Abroad

REX CHAIN

Rex Sprockets, Rex Conveyors, Rex Concrete Mixers and Pavers, Rex Traveling Water Screens

Iowa—A Repeat Order State

No. 6 of a series of 10 Repeat Order States

75 Repeat Orders from Iowa

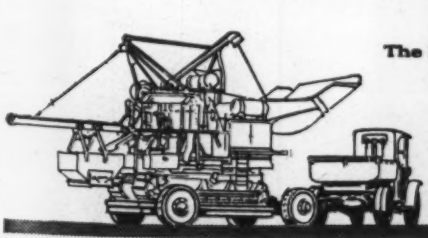
(Including only names of owners who have bought 2 or more Foote Pavers)

Home of the first MultiFoote paver ever built. Foote and MultiFoote pavers have from *first*, been the choice of repeat order buyers in Iowa.

13	Iowa Contractors have bought	2 or more Foote Pavers
7	Iowa Contractors have bought	3 or more Foote Pavers
6	Iowa Contractors have bought	5 or more Foote Pavers
6	Iowa Contractors have bought	6 or more Foote Pavers
6	Iowa Contractors have bought	7 or more Foote Pavers
3	Iowa Contractors have bought	8 or more Foote Pavers
2	Iowa Contractors have bought	9 or more Foote Pavers
2	Iowa Contractors have bought	10 or more Foote Pavers
2	Iowa Contractors have bought	11 or more Foote Pavers
2	Iowa Contractors have bought	12 or more Foote Pavers
1	Iowa Contractor has bought	13 Foote Pavers

When Iowa Contractors repeatedly buy Foote Pavers, year after year, isn't it pretty good evidence they are satisfied that Foote performance cannot be duplicated by any other paving mixer on the market?

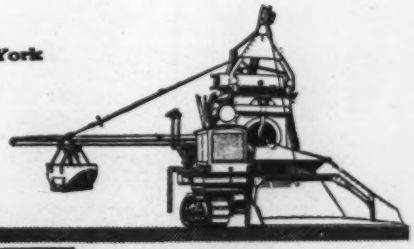
Just Steady Footage—day in and day out—season after season—on job after job—that's why *more than 65% of all our sales are repeat orders.*



The Foote Company, Inc., Nunda, New York

Manufacturers of MultiFoote Pavers and Designers of the Foote Transport Trailer for Hauling Heavy Contractors' Equipment

MultiFoote Traction prevents delays in moving the paver along on the job. The **Foote Transport Trailer** cuts down time and repair expense in moving a paver, roller or other heavy equipment to the job. Write for information.



Quicker to the Job — ROAD **MULTI FOOTE** PAVER — *Faster on the Job*

TRADE MARK REGISTERED

KOEHRING

Easy Flowing Concrete

EASY flowing, easy spouting concrete begins with the mixing action. The plasticity that means easy flowing without excess of water depends on the thorough coating of every fragment of stone and grain of sand with cement. Then cement acts as a lubricant—the concrete is plastic, easy flowing, easy to work—a real factor in lower costs.

The Koehring re-mixing action prevents segregation of aggregate according to size — sends every grain of sand and cement, every fragment of stone through the mixing process for re-mixing. The result is perfect uniformity of concrete from the first to last shovelful of every batch, and a plastic, free flowing concrete that spouts and "works" to great advantage.

This, together with the Koehring *"Heavy Duty"* construction which means long, trouble-free service life, gives the Koehring owner an extra profit margin on every season's work.

Write for Catalog C 8

Koehring Capacities

Heavy Duty Construction Mixers; 10, 14, 21 and 28 cu. ft. mixed concrete.

Pavers: 7, 10, 14, 21, 34 cu. ft. mixed concrete.

Dandie Light Mixer: 4 and 7 cu. ft. mixed concrete. May be equipped with power skip or low charging platform. Water measuring tank and light duty hoist.

KOEHRING COMPANY

Manufacturers of concrete mixers, cranes, draglines, shovels

MILWAUKEE, WIS.

Sales offices and service warehouses in all principal cities.

Foreign Dept. Office 1370, 50 Church St., New York; *Canada*, Koehring Co. of Canada, Ltd., 105 Front St., East, Toronto, Ontario; *Mexico*, F. S. Lapum, Cinco De Mayo 21, Mexico, D. F.

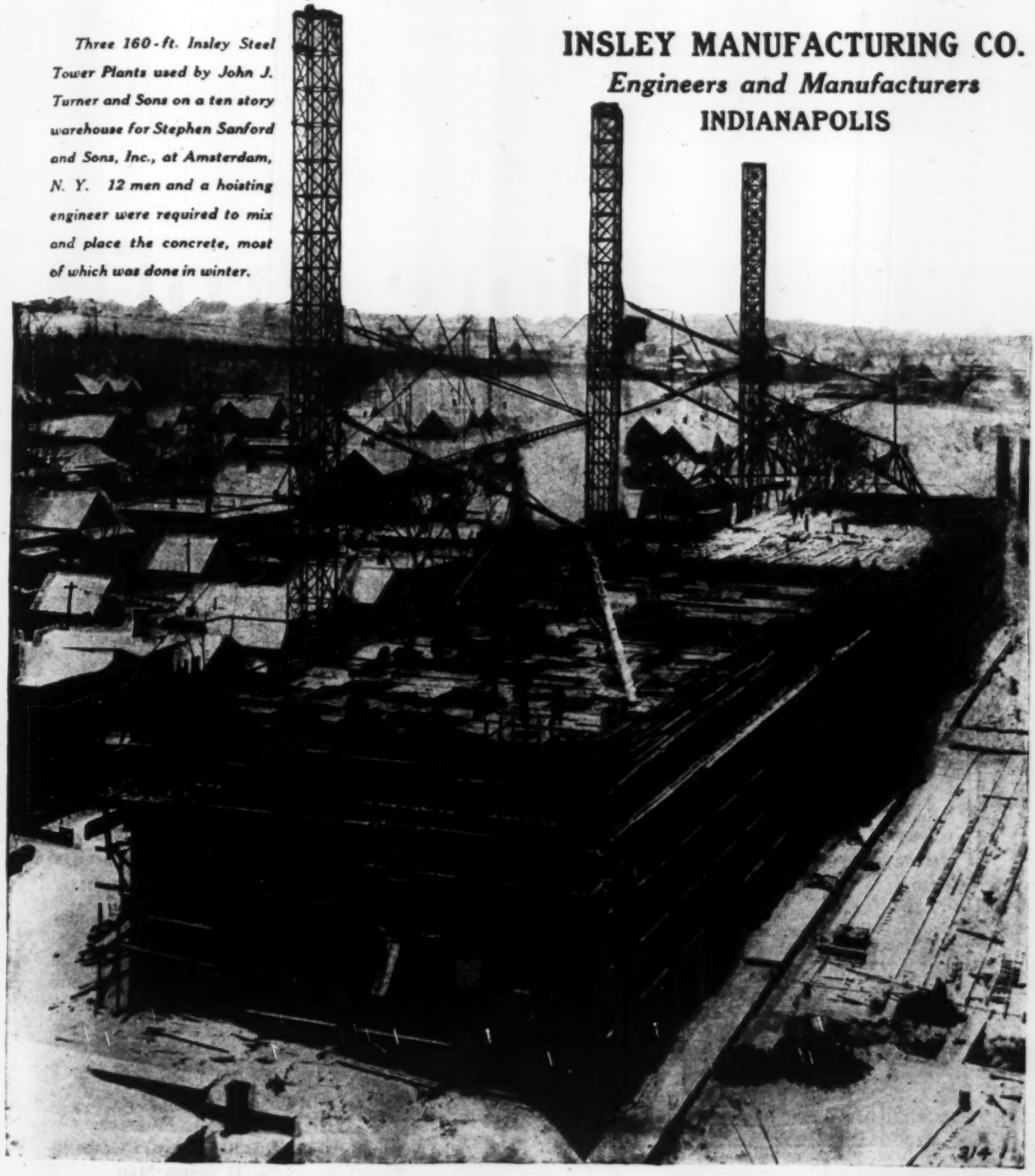
Insley Concrete Placing Equipment

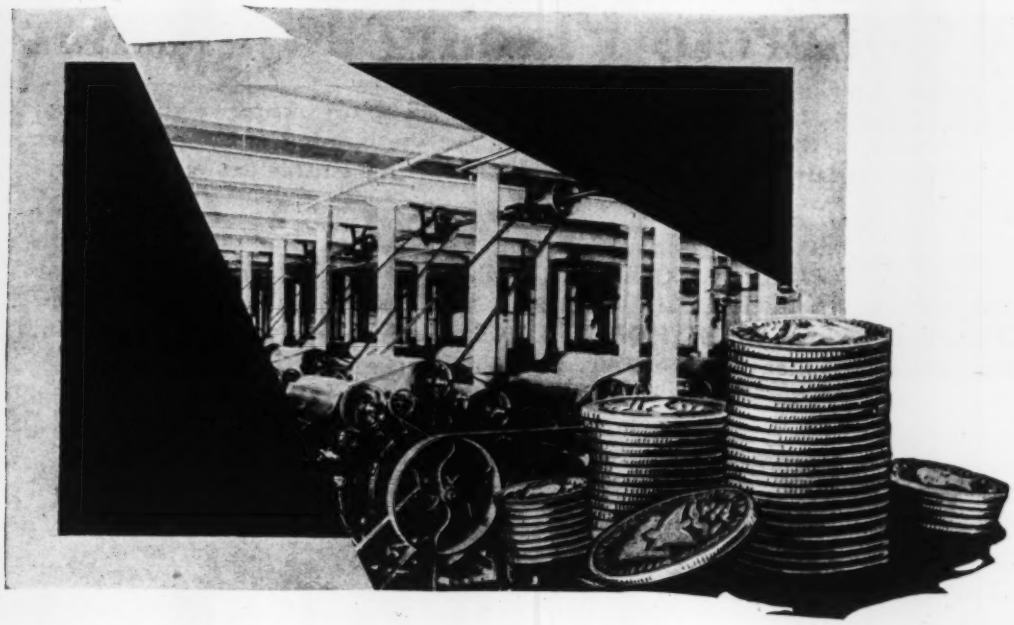
"We are confident that the Insley design of Boom and Counterweight Chutes, and Sliding Frame, is the best that can be had," is the opinion of John J. Turner and Sons of Amsterdam, N. Y. "Stoppages for shifting chutes are entirely done away with."

There are large numbers of contractors who have had similar experiences with INSLEY CONCRETE PLACING EQUIPMENT, whether it be on a 13,000 cu. yd. job as is shown by this illustration, using a multiple tower plant, or a small job of a few hundred yards requiring a MAST HOIST PLANT. Let us show you how the special features of Insley design save you money.

Three 160-ft. Insley Steel Tower Plants used by John J. Turner and Sons on a ten story warehouse for Stephen Sanford and Sons, Inc., at Amsterdam, N. Y. 12 men and a hoisting engineer were required to mix and place the concrete, most of which was done in winter.

INSLEY MANUFACTURING CO.
Engineers and Manufacturers
INDIANAPOLIS





Save the surface and you save all

Rx

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E. I. du Pont de Nemours
and Company

More Profit *with* DU-LITE

The White That's Always White

No need to tell you that the acceptance of any construction job depends to a large extent on the finished appearance. It is particularly important that the interior be finished to give maximum light reflection — thus insuring to your client more profits through increased production.

Realizing this, du Pont Chemical Engineers, in their problem of providing paints for the construction industry, have developed an interior white paint that

Sets a New Standard in Quality

With this Improved Du-Lite you can fully satisfy your client from the standpoint of light-reflection, and its use will mean more profits to you through its greater covering power, and easier working properties.

Engineers, contractors and plant superintendents may obtain free a copy of "Principles and Practices of Upkeep Painting"—a practical handbook covering every painting problem—on receipt of signed request on their business stationery. To others the price is $2.00 per copy. Write Dept. B.

Du Pont Prescription Paint Service covers every requirement of the construction industry. There is a du Pont Paint or Varnish for every type of surface.

Bridges
Buildings
Structural Steel of every description
Railroad Structures
Warehouses
Standpipes
Tanks and Towers
Steel Stacks
Storage Bins
Hoppers, Etc.

Write us describing your requirements

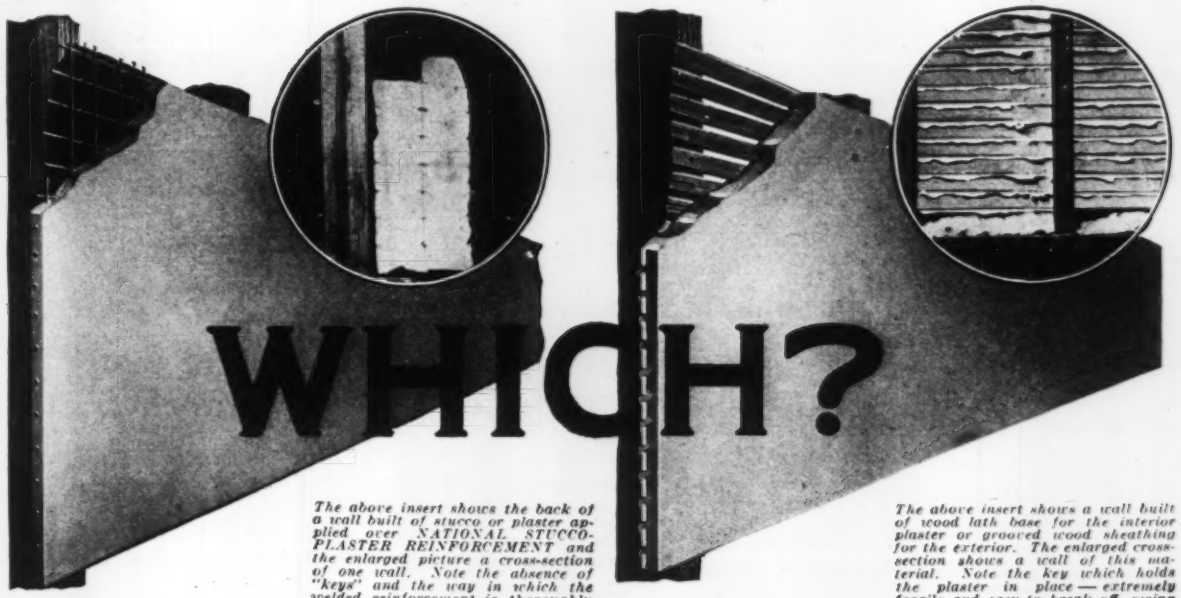
1793 · BORN WITH THE REPUBLIC · 1802

DU PONT

PAINTS AND VARNISHES

E. I. DU PONT DE NEMOURS & CO., INC.
35th St. and Gray's Ferry Road
PHILADELPHIA, PA.

Chicago Varnish Works, 2100 Elston Ave., Chicago, Ill.
Everett Station, No. 49, Boston, Mass.



The above insert shows the back of a wall built of stucco or plaster applied over NATIONAL STUCCO-PLASTER REINFORCEMENT and the enlarged picture a cross-section of one wall. Note the absence of "keys" and the way in which the welded reinforcement is thoroughly embedded in the plaster and stucco; thus assuring a reinforced job.

The above insert shows a wall built of wood lath base for the interior plaster or grooved wood sheathing for the exterior. The enlarged cross-section shows a wall of this material. Note the key which holds the plaster in place — extremely fragile and easy to break off, owing to the expansion and contraction of the wood bases.

Handled by all dealers —write for literature and samples

Which would you rather have—exterior walls reinforced with NATIONAL STUCCO-PLASTER REINFORCEMENT (galvanized) at the same or less cost with the assurance of permanency . . . . interior walls, partitions and ceilings, reinforced with NATIONAL STUCCO-PLASTER REINFORCEMENT (galvanized) at a slight increase over the cost of wood lath, thereby insuring the plaster against cracks and lath marks, and making it possible to put decorations on the walls and ceilings without fear of discoloration. . . . . or—those types of lath which have been commonly used and resulted in the cracking and falling off of the stucco and plaster, due to expansion and contraction and breaking off of the "keys."

Again we ask "WHICH?"

When you build, insist on having NATIONAL STUCCO-PLASTER REINFORCEMENT

National Steel Fabric Company

(Subsidiary of Pittsburgh Steel Company)

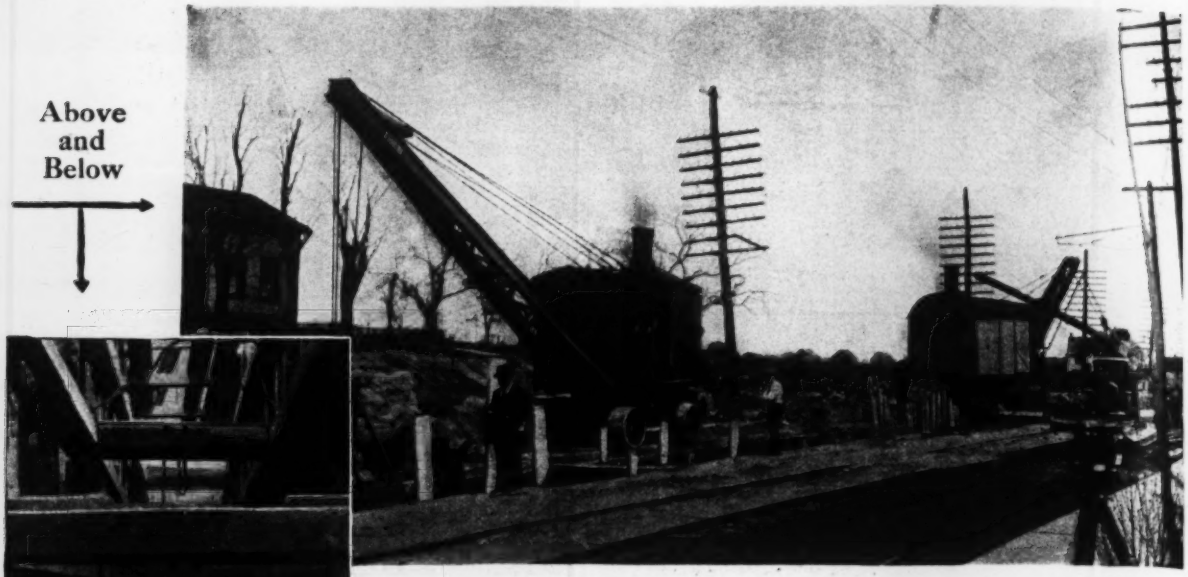
700 Union Arcade **Pittsburgh, Pa.**

NATIONAL STEEL FABRIC CO

Subsidiary of PITTSBURGH STEEL CO

UNION ARCADE BUILDING PITTSBURGH, U.S.A

Above and Below



Suited to the Job

from Every Standpoint

SEVEN YEARS trenching in hard blue shale and rock! Some test for any shovel. Yet The Haddad-Mall Company have recently made it "another Thew" because they know they can depend on it.

This job is representative of what they expect from their shovels. Two and one-half miles of trench averaging 23 feet deep; 50 to 75 feet completed each day. "Completed" means digging, laying two sewer lines and filling.

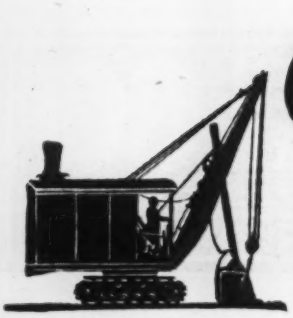
Shovels that will do this are worth getting acquainted with. Write for Bulletin 113 and find out some more facts about the Type A-1 Thew.

THE THEW SHOVEL CO., LORAIN, O.

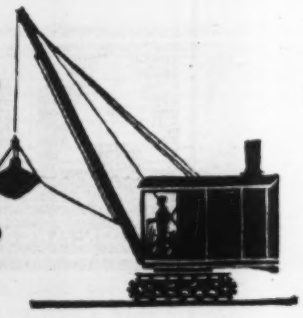
The A-1 Thew

"Our first Thew shovel, a Type A-1, was purchased in 1915. We have used it solely for trench excavation, mostly hard blue shale and rock. This machine has gone through some real hard work and has stood up splendidly. We are pleased with both machines and feel that they have given us full satisfaction. Your service has been first class.

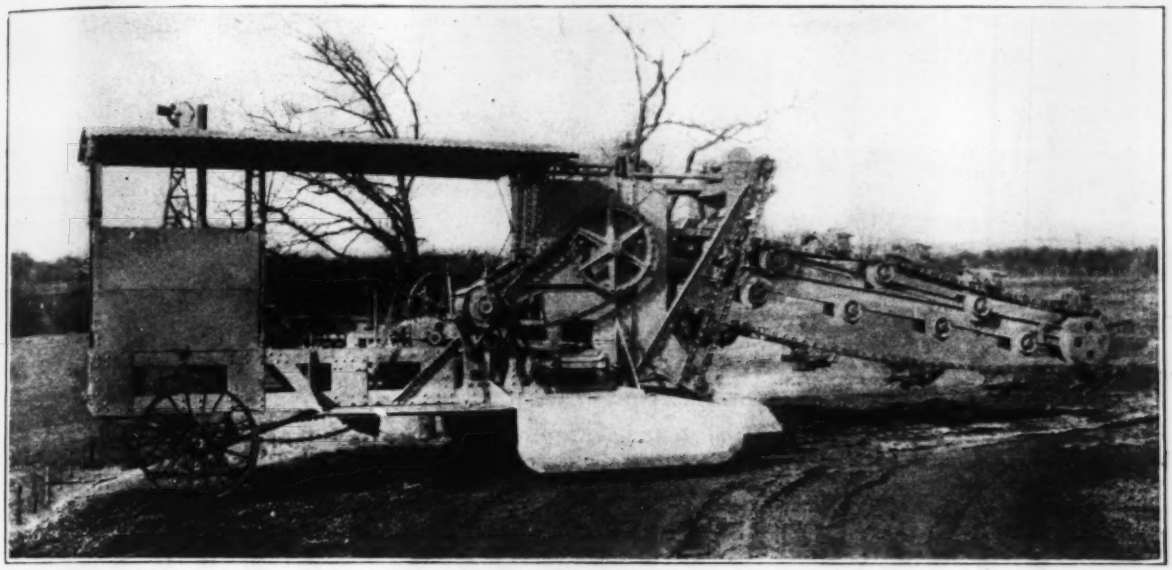
THE HADDAD-MALL CO.
931 Schofield Building
Cleveland, Ohio



Thew
Power Shovels



PARSONS



WE don't know who built the first trench excavator—it may have been King Tut—but we do know who builds the *best* one on the market today—it's called the

PARSONS MODEL 30

It cuts 12 feet deep and 30 inches wide and for work of this size the new Model 30 is the sturdiest, fastest, longest lived, easiest operated, most mabile and best paying machine ever built. That's a fact.

Think about these points—direct drive—12 foot wheel base—Parsons quality heat treated electric steel castings—overlapping steel treads on Parco Traction—traction drive through sliding and worn gears—patented endless chain crowding device—45 H.P. heavy duty engine—main reverse and worm gears in oil tight housings.

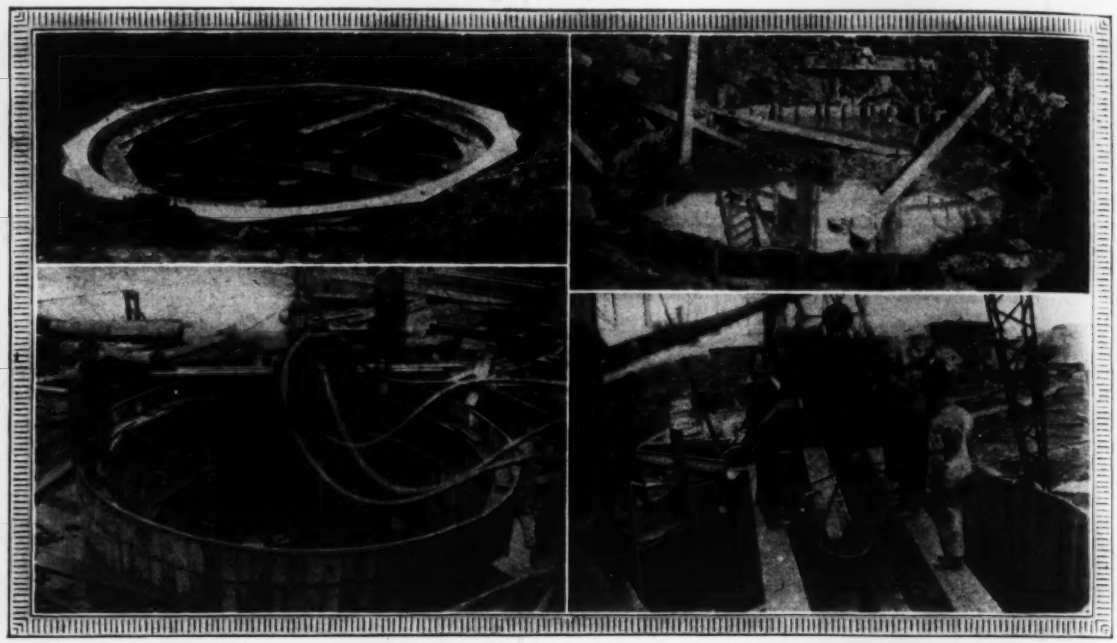
Wire or write for a representative to call.

THE PARSONS COMPANY
NEWTON, IOWA, U. S. A.

Kansas City, 1737 Walnut St. **New York, 145 Centre St.** **Chicago, 11 S. La Salle St.**

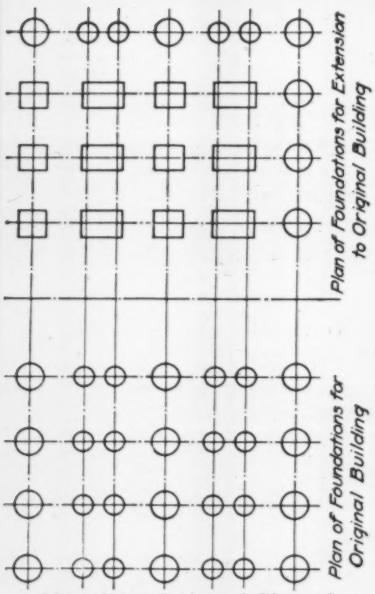
Louisville Houston Los Angeles Denver **Salt Lake City** **San Francisco**
Seattle **Baltimore** Memphis Richmond Philadelphia Atlanta **Buffalo** **New Orleans**
Charlotte Portland

MUSSEN'S LIMITED, SOLE DISTRIBUTORS IN CANADA
Montreal, Toronto, Winnipeg, Vancouver



Top—Bottom template for foundation cylinder in place; piling after driving, showing center pile for locating driving mast
Bottom—Driven cylinder with top wooden form and concrete ring brace in position, also sand ejector in operation; filling cylinder with concrete

Installing the



Plan of foundations of Plant of Philadelphia Electric Company, showing extent of recent addition

for Delaware Station Philadelphia Electric

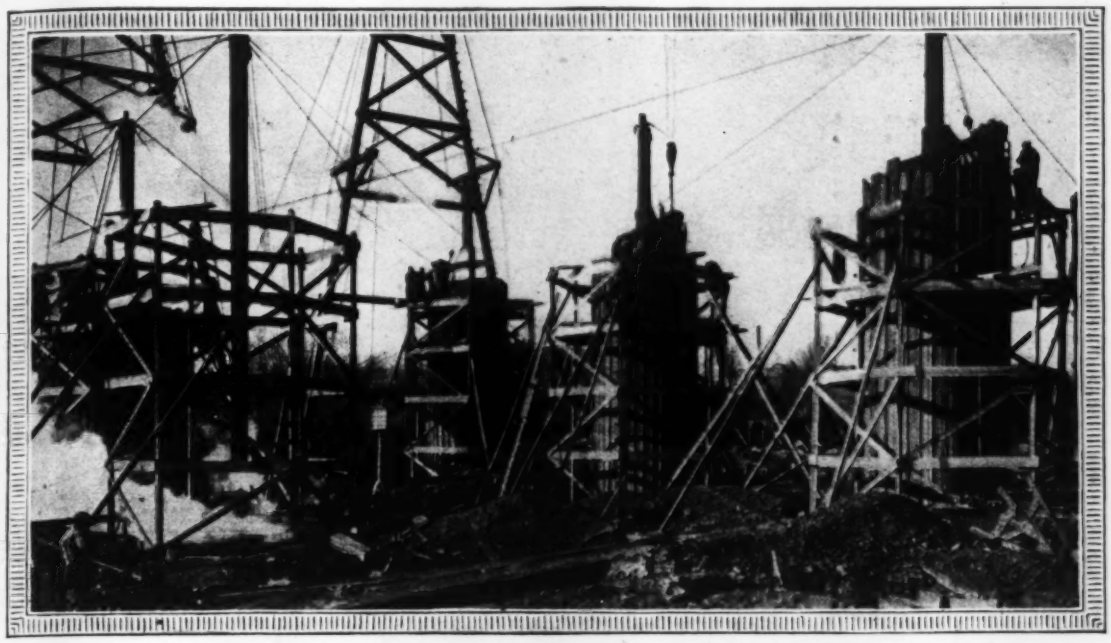
The Delaware Station Power House of the Philadelphia Electric Company is located on low-lying, wet land, previously used as a shipyard.

The first installation consisted of twenty-eight piers, each approximately 14 feet in diameter, and constructed within permanent cylindrical open caissons. Each caisson was composed of 42 pieces of Lackawanna 12¾in. x ⅝in. straight-web section in 32-foot lengths.

The steel sheet piling was assembled by means of cable way around two templates, one at ground level, the second at a height above ground of two-thirds the length of the steel, thus insuring accurate size of cylinder and plumbness of steel. After setting and closing the cylinder, the piling sections were driven short distances in succession down to bed rock, that is the piling was entirely driven before excavation was started.

In this way the piling of the cylinders was driven quickly and without interruption. Likewise the excavation of the material proceeded rapidly and without interruption, and the whole foundation job was accomplished with very satisfactory economy.

BETHLEHEM



Five cylinders being driven at once. Note the plumbness of the Lackawanna Steel Sheet Piling
John T. Windram, Architect; Stone and Webster, Builders, The Philadelphia Electric Co., Engineers

foundation piers

Power House of the Company—

When an addition to the Delaware Station was started in 1922, the general method that had proved so successful for the first foundations was adopted for the additional foundations. Open caissons, excavated in the dry and braced with circular steel rings, were used, with Lackawanna Piling in 40 and 45-foot lengths.

Economy and efficiency is obtained in foundation, pier, bulkhead and similar work by the use of Lackawanna Piling. Our piling engineer's experience covers hundreds of jobs, and they are ready to help on your piling problems.

New Catalog giving data, dimensions and details sent on request

BETHLEHEM STEEL COMPANY
General Offices: BETHLEHEM, PA.

Sales Offices:

New York	Baltimore		Pittsburgh	Chicago
Boston	Washington	Cincinnati	Cleveland	St. Louis
Philadelphia	Atlanta	Buffalo	Detroit	San Francisco

BETHLEHEM STEEL EXPORT CORPORATION
25 BROADWAY, NEW YORK CITY
Sole Exporter of Our Commercial Products

One of the circular caissons showing six sets of bracing rings in position. Bottom at elevation about —45.

LACKAWANNA STEEL SHEET PILING

"Jackhamer" drills used in Tennessee quarry furnishing stone for highway construction. These machines are drilling 10 ft. holes in hard limestone.

The Universal One-Man Rock Drill

"JACKHAMER"

A "Jackhamer" is the rock drill for all-around work. No contractor's equipment is complete without, at least, one of these machines.

One man can operate and work the "Jackhamer." He can run the drill wherever he can get a foot hold, and drill holes at any angle. The "Jackhamer" rotates its drill steel and cleans the hole of the cuttings.

For road construction—grading, quarrying ditching, trench digging—or for building excavation, tunnelling, block hole work, etc., use the "Jackhamer."

And, for furnishing air to your "Jackhamer" Drills use an I-R Portable Compressor—a compact, complete, easily moved air compressor plant on wheels, built primarily for the contractor.

Bulletin 4046 contains a detail description of the construction of the "Jackhamer" and of the work which it can do. Send for a copy now.

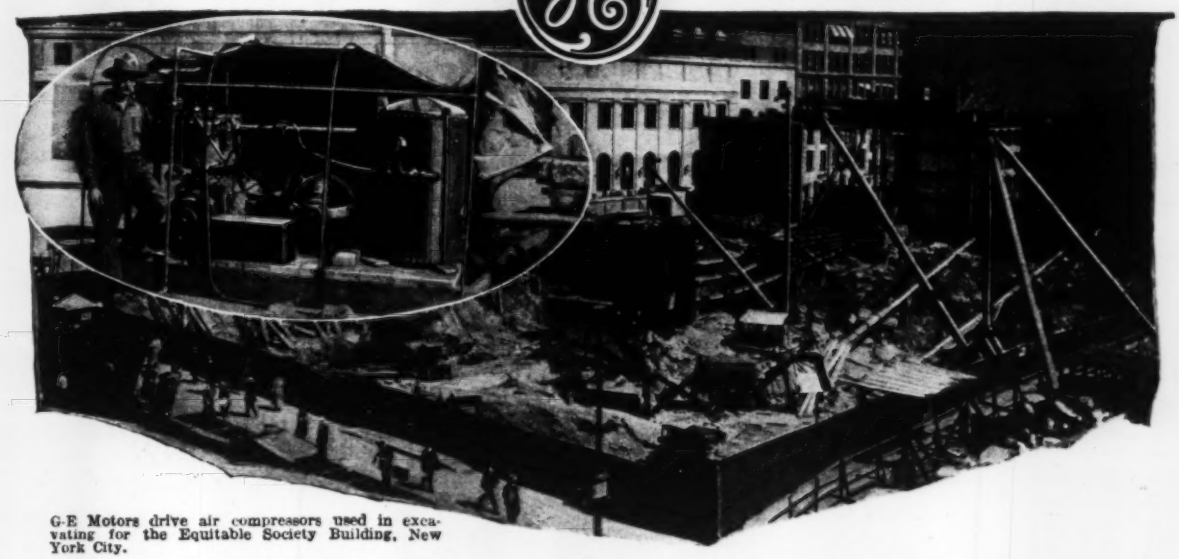
INGERSOLL-RAND COMPANY, 11 BROADWAY, NEW YORK

BUTTE	BOSTON	NEW YORK	CLEVELAND	PHILADELPHIA
BUFFALO	EL PASO	KNOXVILLE	PITTSBURGH	SAN FRANCISCO
BIRMINGHAM	SEATTLE	SCRANTON	LOS ANGELES	SALT LAKE CITY
DULUTH	ST. LOUIS	LONDON	DETROIT	JOPLIN
DENVER	CHICAGO	PARIS	NEW ORLEANS	DALLAS
		HOUGHTON		

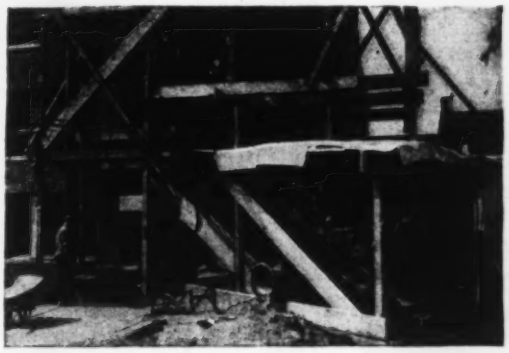
For Canada, refer Canadian Ingersoll-Rand Co., Limited, 260 St. James Street, Montreal, Quebec

274-JD

Ingersoll-Rand



G-E Motors drive air compressors used in excavating for the Equitable Society Building, New York City.



G-E Motor drives hoist used in erecting the Home Insurance Building, New York City.

G-E Motor drives elevator used in constructing the Title Guarantee & Trust Co. Building at Jamaica, Long Island.

The Power of Progress

Modern business efficiency demands skyscrapers—modern construction efficiency utilizes G-E Motors to the utmost.

From the start of the first pneumatic drill eating into the living rock at the beginning of the excavating until the completion of the finished building, G-E Motors aid the builder.

They drive the compressors which furnish air for drills and riveters.

They operate pumps for draining excavations—derricks used at every stage of the job, from clearing the excavated material from where the foundation rests, to lifting the final structural girder on which some proud worker plants the flag—hoists for furnishing lumber, brick, concrete, tile and plaster—mixers, conveyors, and elevators.

And when the job is done, they are easily moved on to the next job.

Ask G-E engineers to help you select electrical equipment for your construction plant. You can reach them at G-E Sales Offices in all large cities.

General Electric Company
Schenectady, N. Y.

GENERAL ELECTRIC

43B-756

8 Dorrco Screen Units for Los Angeles

to treat 80,000,000 gallons of municipal sewage per day.

Dorrco Screening Plants are now in operation or under construction for the treatment of municipal sewage at:

New Britain, Conn.
Bethlehem, Pa.
Miami, Fla.
St. Petersburg, Fla.
Lodi, Cal.
Ventura, Cal.
Venice, Cal.
San Pedro, Cal.
Pasadena, Cal.
Los Angeles, Cal.

The awarding of this contract is another indorsement of the Dorrco Screen which is steadily proving its superiority because of:

Lowest first cost per million gallons handled regardless of volume.

A minimum of moving parts.

Simple construction of screen and concrete work.

Self-cleansing —— no brushes, scrapers, nor water jets.

Minimum attention required.

Well drained screenings delivered ready for final disposal.

Send for Bulletin No. 20

The Dorr Company
Engineers

Sanitary Engineering Department
247 Park Avenue
Denver New York London

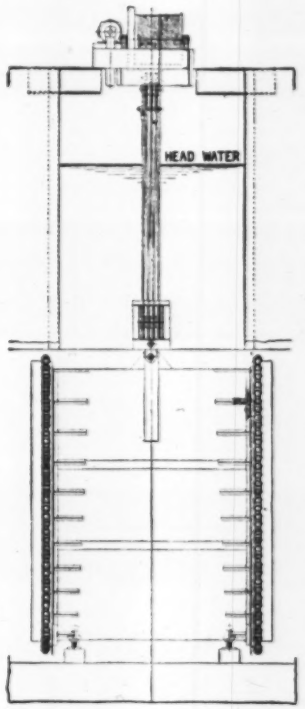
RESEARCH TESTS DESIGN EQUIPMENT

Broome Caterpillar Sluice Gates

are seated by the action of gravity and the water pressure behind them, *the seat being inclined to the movement of the gate.* Adjustment screws at the lower end of the gate eliminate all sliding friction.

They have given years of efficient service. They are in operation in the United States and Canada, and many additional installations are being made throughout the country.

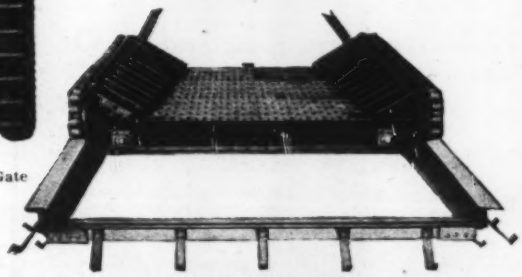
They are adaptable for penstocks, locks, flash-boards, flood control or any situation where sliding gates are used.



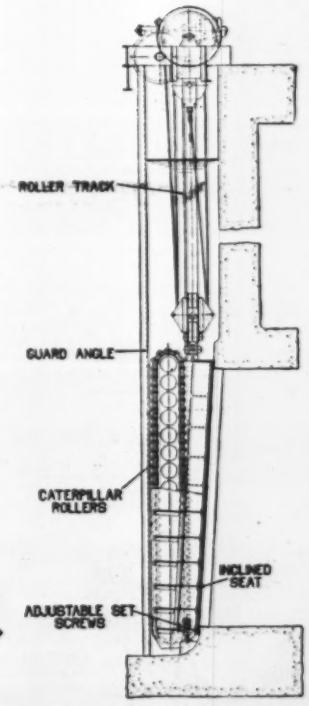
Pressure face of Broome Gate

CHAMPION Gate Hoists — hand and power operated — are the most up-to-date lifting units on the market.

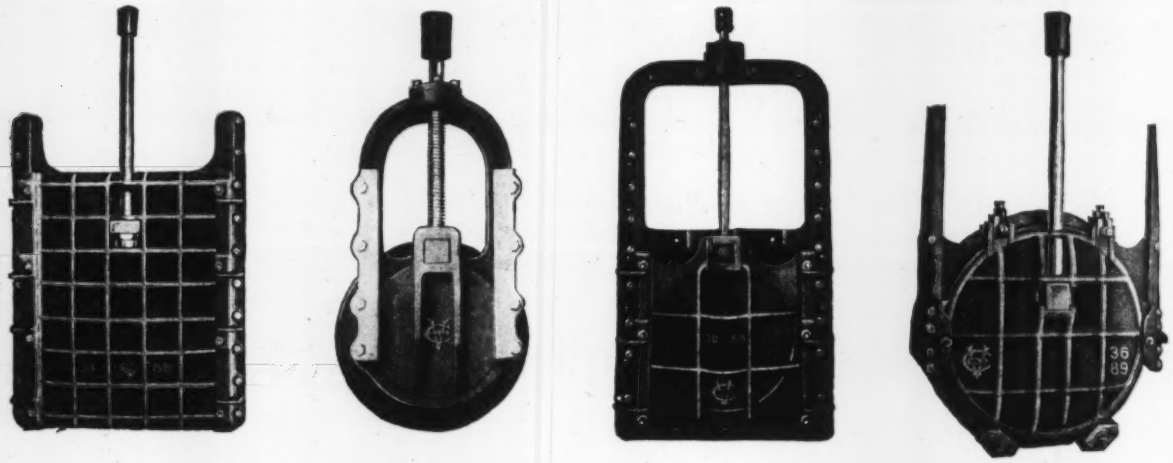
The Champion Engineering Co.
Kenton, Ohio



View of Broome Gate, looking up from below
Note the Set Screws



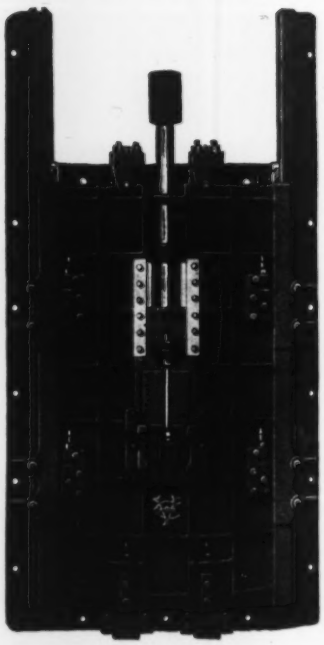
CHAPMAN



A few of our many Standard designs

Each one of these Sluice Gates has been carefully designed and built in every detail of metal and construction, for its particular purpose. Standard patterns and advanced method keep production costs at minimum.

Our experience in this field covers the production of Waste Gates, Controlling Gates, Inlet and Outlet Gates, Distributing Gates, etc., etc. These cuts illustrate a few of our many standard designs.



The Chapman Catalog

We have issued a catalog of more than 300 pages that is practically a "textbook" on the latest Sluice Gate Practice and all related mechanism. We will be glad to forward you a copy with our compliments, upon request.

The Chapman Valve Mfg. Co., Indian Orchard, Mass.

BRANCHES:

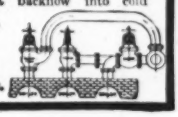
New York, Pittsburgh, Detroit, Chicago, San Francisco, Houston, Boston, Philadelphia, Cleveland, Los Angeles, Tulsa, Syracuse

VALVES

GOLDEN-ANDERSON
Pat. Automatic Double Cushioned Triple Acting Non-Return Valves

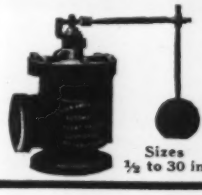
1. Prevent shut-downs due to reversal of steam flow.
2. Instantly close and isolate a boiler when a tube bursts.
3. Cut off steam flow from every boiler instantly when a steam pipe ruptures.
4. Automatically cut a boiler into line.
5. Prevent backflow into cold boiler
6. The only valves that can be tested in service.

Angle Globe or Elbow Pattern



GOLDEN-ANDERSON
Pat. Automatic Cushioned Water Float Valves

1. Automatically Maintain Uniform Water Levels in Tanks, Standpipes, etc.
2. Instantly Adjusted to Operate Quickly or Slowly.
3. Floats Swivel to any Angle—Most Satisfactory Float Valves Known.
4. No Metal-to-Metal Seats—No Water, Hammer or Shock.
5. Cushioned by Water and Air.



Sizes ½ to 30 in.

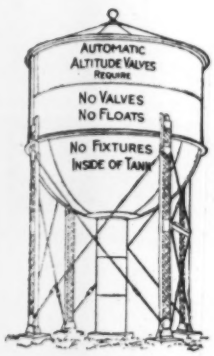
"No Metal-to-Metal Seats"

GOLDEN-ANDERSON
Pat. Cushioned Water Relief Valves

1. Automatically relieve excess pressure.
2. Prevent stress, strain and bursting of mains.
3. Correct mechanical construction.
4. Perfect air and water, cushioning.
5. No metal-to-metal seats. No hammering or shocks.
6. Angle and globe pattern. Sizes 3 to 30 in

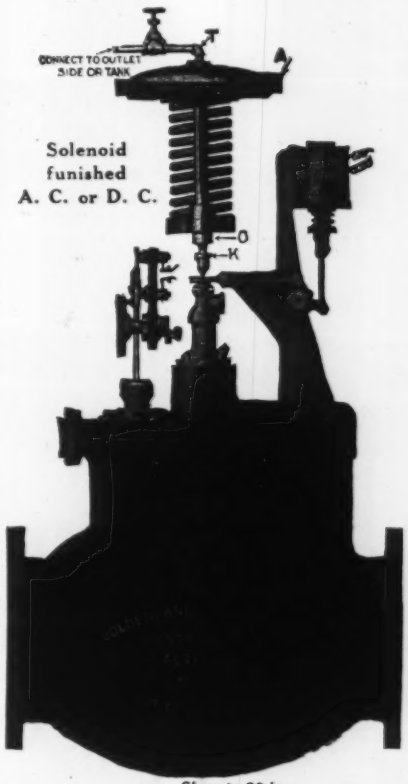
Pumps Motor-driven? Use Golden-Anderson

Patented Automatic Cushioned "Stop-Starter Electric" Controlling Altitude Valves



These valves will "cut in" or "cut out" one or more driven pumps. Actuated by the fall or rise of water level in stand-pipes, tanks or reservoirs. Control pumps automatically from distant points if desired. By maintaining a constant water level, they stop water waste due to overflow, and also all unnecessary pumping. For high or low pressure. Air and water cushioned. No floats or fixtures. No water hammer or shock. No metal to metal seats. Solenoid furnished for alternating or direct current. Especially adapted for railroads, water works and industrial plants.

"No Floats or Fixtures"
"No Water Hammer or Shock"



Solenoid funished A. C. or D. C.

Sizes to 30 in.

Golden-Anderson Valve Specialty Co., 1202 Fulton Bldg., Pittsburgh, Pa.

GOLDEN-ANDERSON
Pat. Cushioned Electric Water Service Valves

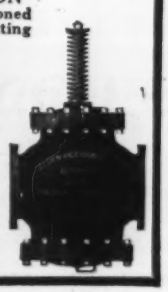
1. Give instant control of water distribution from pumping station in case of fire.
2. Open or close by electricity from distant points—a.c. or d.c. circuits. Also close by hand.
3. No waste of electricity. Current is on only few seconds.
4. Cushioned in opening and closing.
5. No water hammer, shock, sticking, surging or chattering

"Hosts of References"

Absolute Guarantee

GOLDEN-ANDERSON
Pat. Automatic Cushioned Water Pressure Regulating Valves

1. Maintain a constant reduced pressure regardless of fluctuations on high pressure side.
2. Perfectly Cushioned by water and air. No metal-to-metal seats.
3. The best valve made for maintaining a constant low pressure where consumption is continuous.
4. Operates quickly or slowly as required—No attention necessary.
5. Positively no hammering or sticking. Sizes to 21 in.



GOLDEN-ANDERSON
Pat. Automatic Double Cushioned Check Valves

1. Especially adapted for Water Service.
2. For High or Low Pressure.
3. Thoroughly Cushioned, No chattering, Hammering, or Sticking.
4. Globe or Angle Patterns up to 30 in.
5. Especially adapted for hydraulic elevator service.

COFFIN VALVE COMPANY,

Makers of the Largest Sluice and Gate Valves in America

Photo Courtesy N. Y. Board of Water Supply

WE FURNISHED the four 30-in. Solid Bronze Gate Valves (with solid bronze hydraulic cylinders) and the 8-in. and 12-in. Gate Valves also shown (which are solid bronze) and the solid bronze 30-in. Pipes in the foreground, for the New York Board of Water Supply, Gilboa Dam.

This system of piping and valves provides the Blow-off and Steam Control.

Check Valves
Flap Valves
Foot Valves
Sewer Gates

Office and Works, Neponset, Suburb of

BOSTON, MASS.

Sluice Gates
Gate Valves
Butterfly Valves
Fire Hydrants

REPRESENTATIVES:

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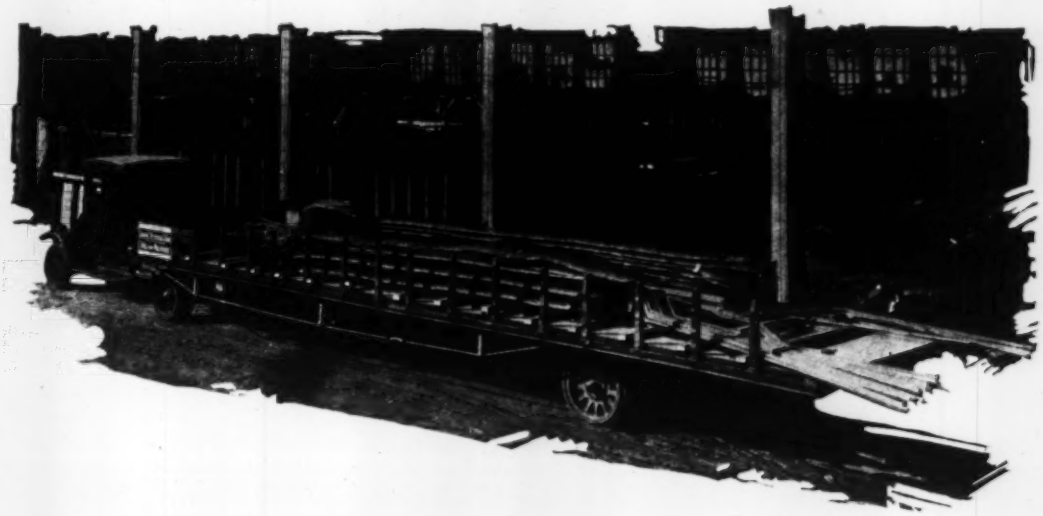
Cleveland, Ohio: Tomlinson Steam Specialty Co., 1597 St. Clair Ave.
Philadelphia, Pa., DeHuff & Hopkins, Morris Building
San Francisco, Cal.: Theo. F. Dredge, Monadnock Building
Toronto, Ont.: The Arthur S. Leitch Co., Ltd., 1001 Kent Building
Montreal, Que.: Sterling Engineering Co., 232 St. James St.



Thousands of Tons of Reinforcing

BACK of Ryerson Reinforcing-Service are six huge plants, each with its thousands of tons of reinforcing materials such as bars, spiral rods and spacers, wire, accessories, etc., We are the contractor's storeroom and reinforcing shop.

Our large stock of steel on hand together with our complete equipment for bending, making spirals and special pieces, enables us to make quick shipment of the complete material—cut, bent, bundled and tagged, ready for the forms.

It will pay you to send us your plans for a lump sum or pound price estimate.

JOSEPH T. RYERSON & SON INC.
ESTABLISHED 1842

CHICAGO ST. LOUIS CINCINNATI DETROIT BUFFALO NEW YORK
BRANCH OFFICES: DENVER HOUSTON JERSEY CITY
MILWAUKEE MINNEAPOLIS NEWARK SAN FRANCISCO TULSA

Save 14c Per Ton Loading With the Jeffrey Portable Belt Conveyer

One man and a Jeffrey "Portable" can load a 5-ton truck in 10 minutes. Doing this work by hand takes 3 men 40 minutes. Figuring then the cost of labor at 40c. per hour, the conveyor will load at a cost of 2c. per ton against 16c. per ton by hand, or an average saving of 14c. on each ton loaded.

A Few of the Important Features:

Easily operated Worm and Wheel Raising and Lowering Device automatically locks conveyer in any position.

Troughed Belt carries gritty material without injury to belt.

Strong sharp nose can be readily thrust into pile.

Steel Guard Plates protect lower strand of belt.

Chain Guard protects high-speed chain.

A light, rugged and inexpensive conveyer which will load, reclaim or store coal, coke, sand, gravel, crushed stone and smaller materials — unload cars — handle bricks, tile, small boxes and bags.

Write for further information and prices

The Jeffrey Mfg. Co., 923-93 North Fourth Street **Columbus, Ohio**

New York, 2006 Hudson Terminal Bldg. Chicago, 858 McCormick Bldg. Pittsburgh, Rea Bldg., 622 Second Ave. Montreal, Canada, Power Bldg.

Locations of Other Jeffrey Sales Representatives

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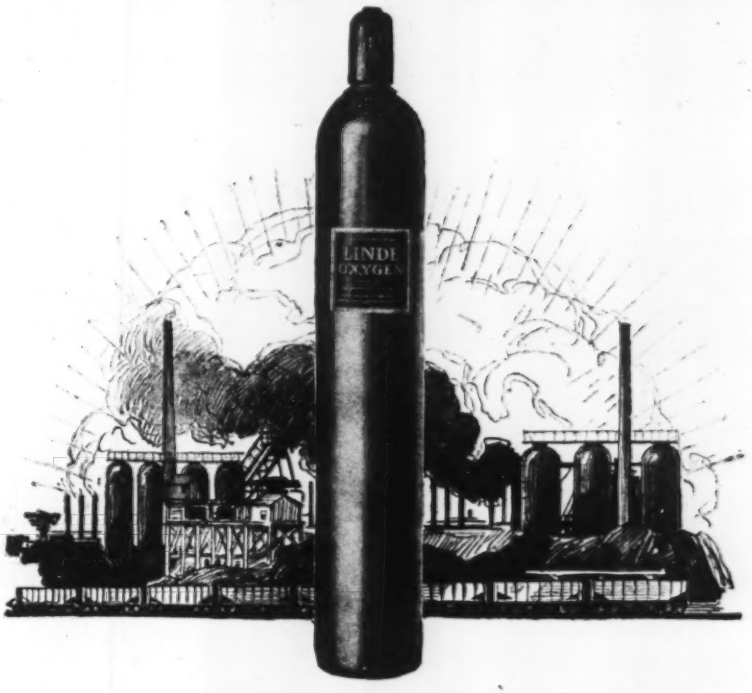
JEFFREY



Gas Welded Pipe Joints

The use of gas welded joints in pipe lines has been adopted by many of the largest oil and natural gas companies.

Hundreds of miles of welded pipe lines are used daily with complete satisfaction.

Linde Service Engineers working with Linde users have played an important part in establishing standard practices for welding joints on all kinds of piping. The result of this practical experience in the development of gas welded pipe joints is placed within convenient reach of every Linde user through Linde Service.

Because of the unusual interest over the entire country for information about gas welded pipe joints the Linde Company has prepared a booklet which should be of interest to every large user of piping.

A copy of "How Welded Joints Solved Pipe Line Troubles," may be secured upon request from our nearest District Sales Office.

Linde Service is the logical development of Linde's Desire to give its patrons every facility and service in the use of Linde Products

For your convenience—31 plants—58 warehouses

THE LINDE AIR PRODUCTS COMPANY

Carbide and Carbon Building, 30 East 42d St., New York City

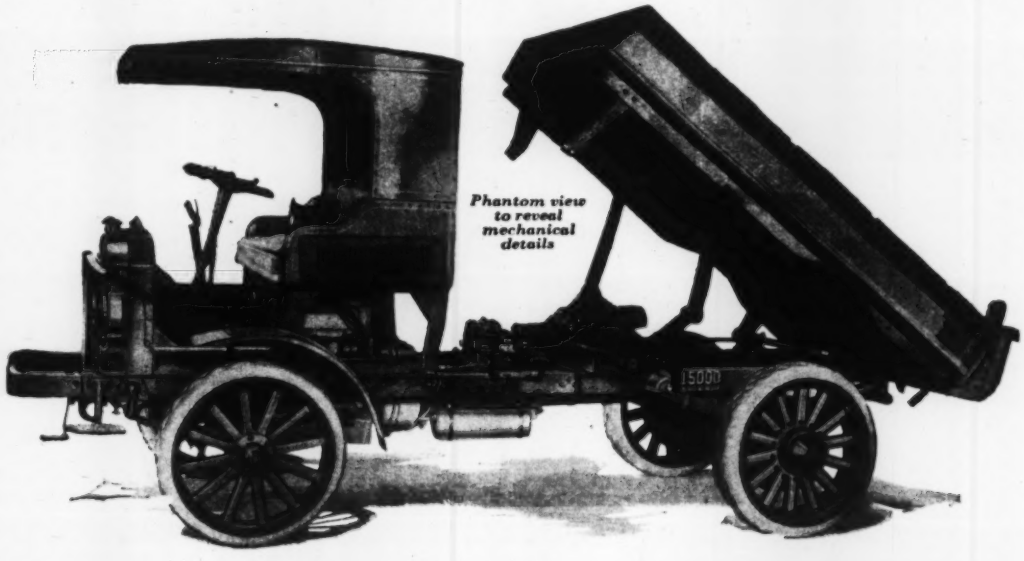
The Largest Producer of Oxygen in the World

District Sales Offices:

Atlanta	**Chicago**	Detroit	New Orleans	Pittsburgh
Baltimore	**Cleveland**	Kansas City	New York	San Francisco
Boston	**Dallas**	Los Angeles	Philadelphia	Seattle
Buffalo		Milwaukee		St. Louis

LINDE OXYGEN

Exclusive Autocar rotary dump



Used by more than 1300 coal men

and by

building supply dealers
contract haulers
excavators
highway builders

in all parts of the United States

The sturdy

Autocar

Wherever there's a road

The motor truck with
short wheelbase handiness
mechanical superiority
direct factory branch service

Capacities, 1 to 6 tons
Chassis prices, $1100 to $4350
f.o.b. Ardmore, Pa.

Manufactured by
The Autocar Company
Ardmore, Pa.
Established 1897
Branches in 44 cities

INTERRUPTION REPAIRS FIRE

This is the Triumvirate that you always find seated around the Electric Elevator.

1. INTERRUPTION

The Superintendent of the Bureau of Engraving and Printing at Washington sent for us and said:

"WE WANT YOU TO PUT YOUR STEAM-HYDRAULIC IN PLACE OF THE ELECTRIC.

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There are no repairs to speak of with a Ridgway Elevator. Nothing to it to break and wear out and get out of order.

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It is the same story with all Ridgway Elevators.

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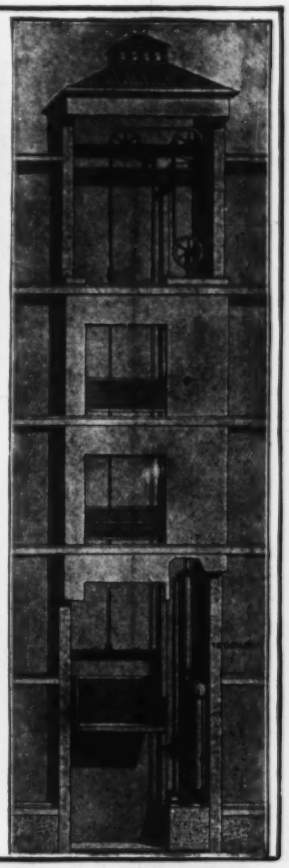

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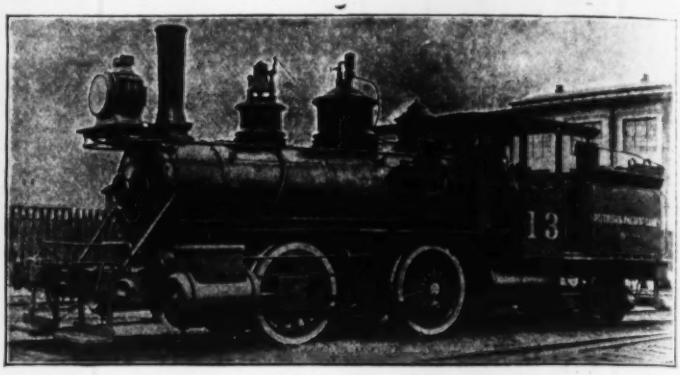

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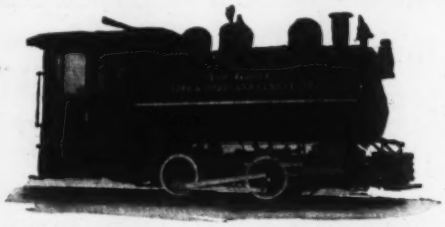

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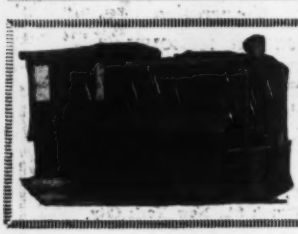

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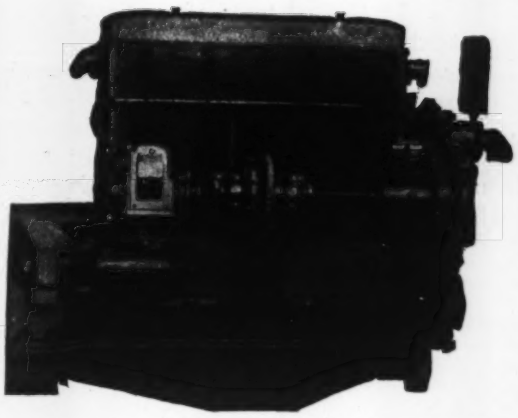

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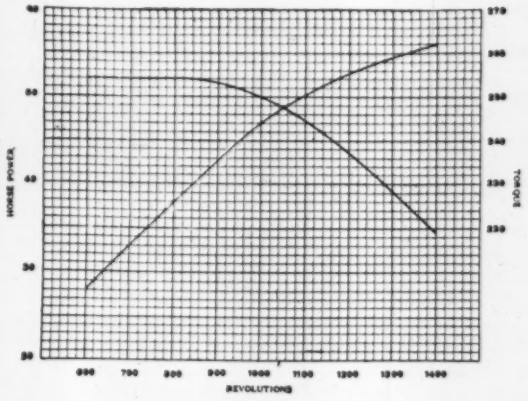

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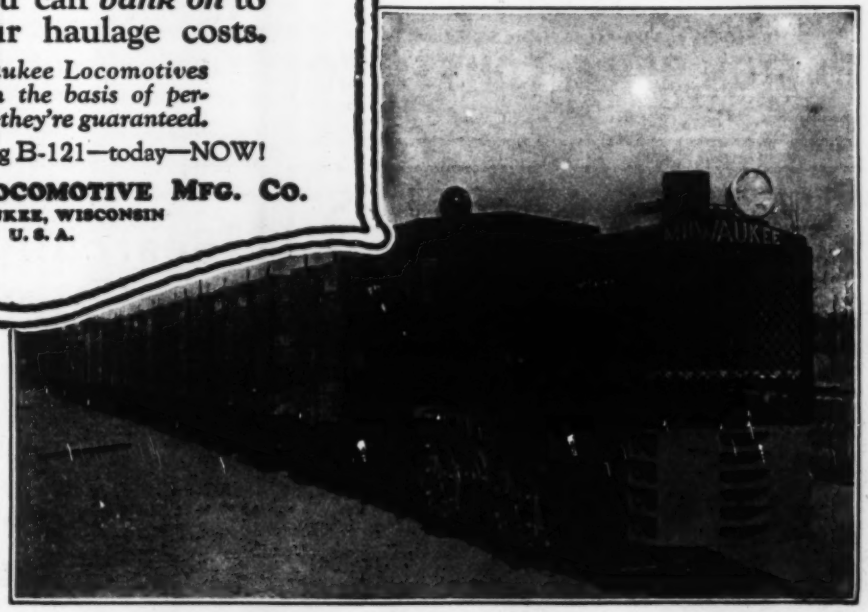

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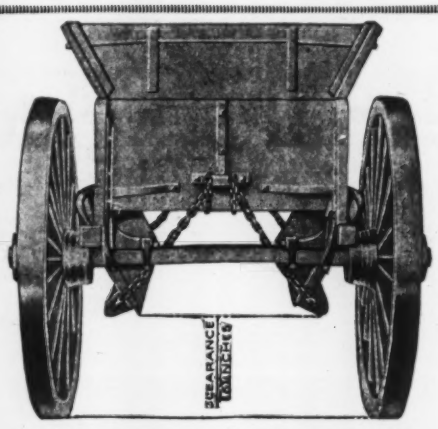

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73

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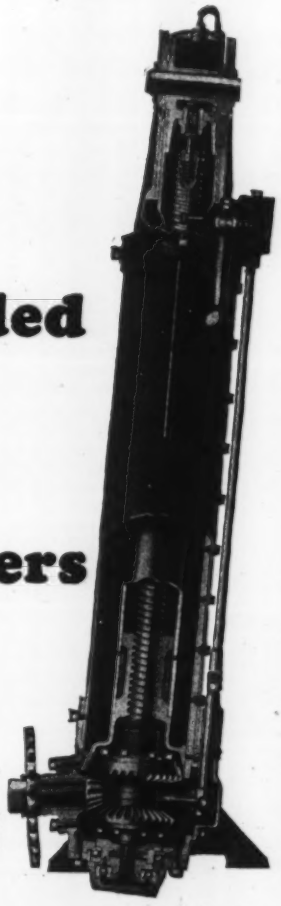

Cutaway View of Vertical Hoist showing screw jack principle of operation and automatic lubricating device.

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Standard Van Dorn Pressed Steel Body; a body of great strength, built to withstand the hardest service.

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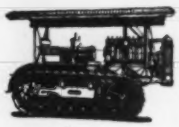

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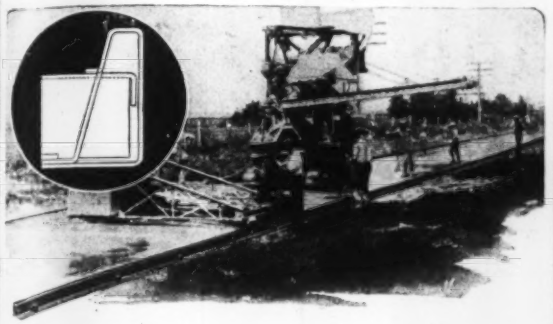

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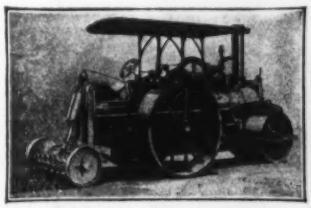

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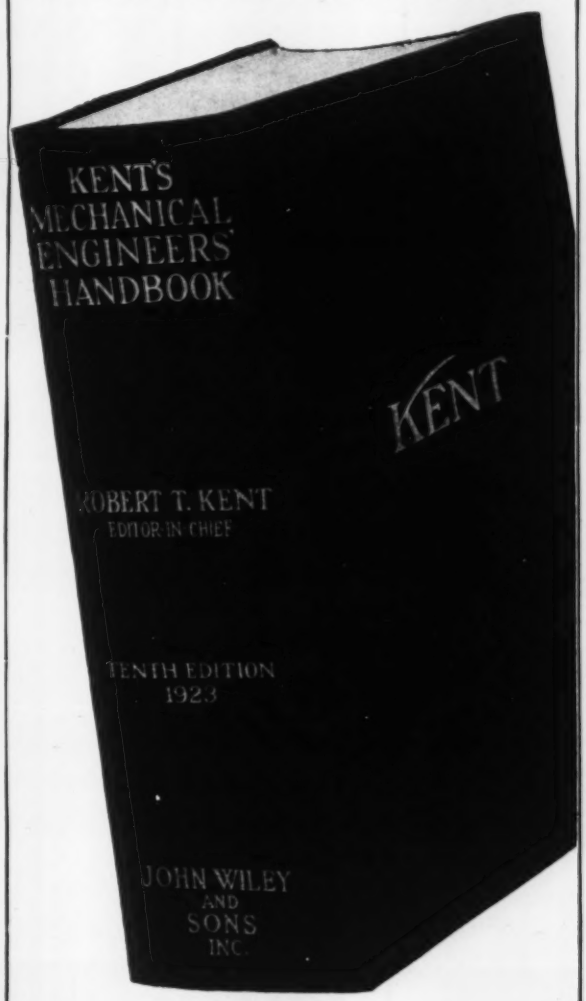

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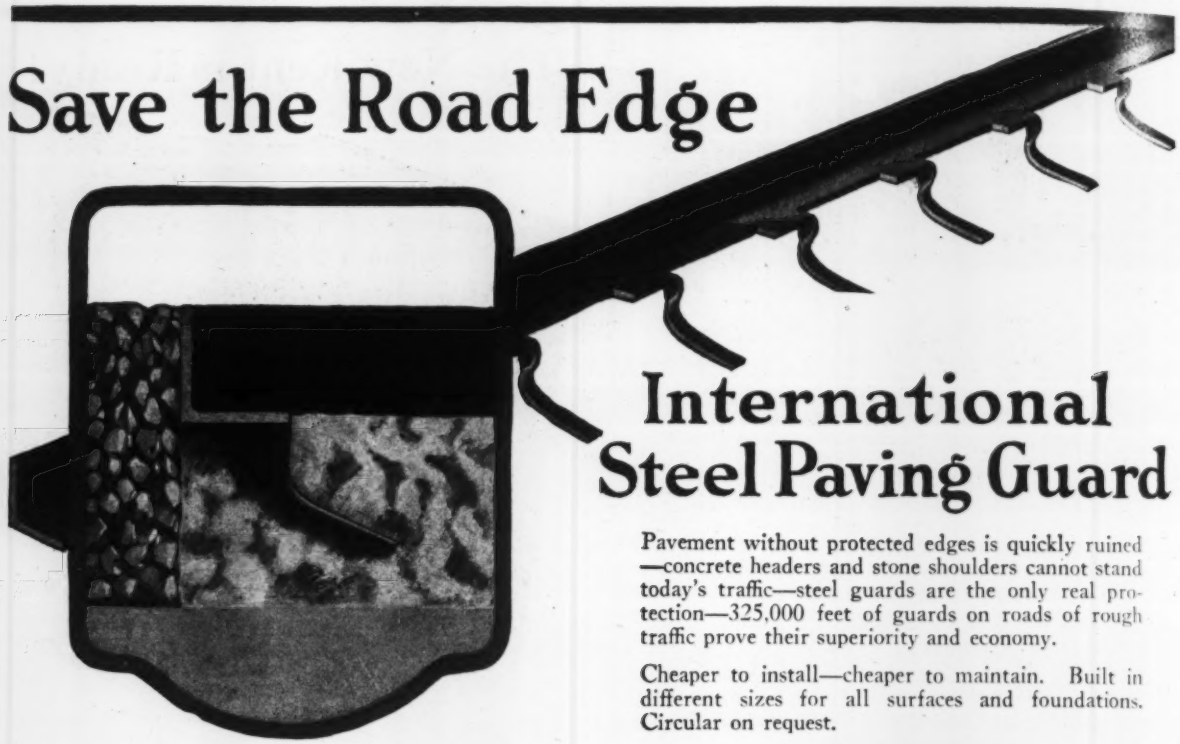

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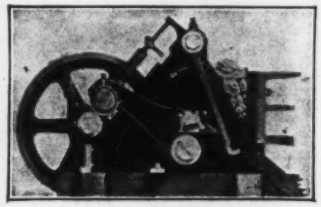

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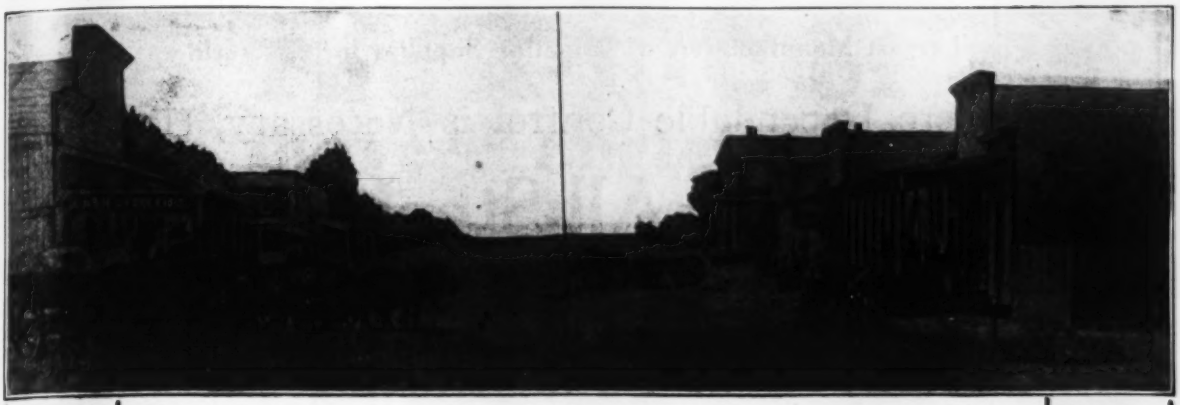

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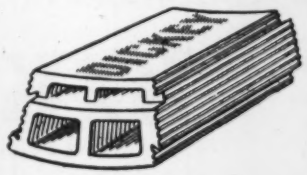

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"ACME" (Nestable) and IMPERAL Riveted Corrugated Culverts. Made of anti-Corrosive Toncan Metal. Write for prices.

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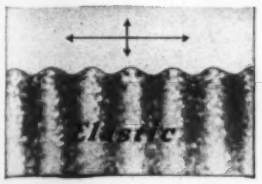
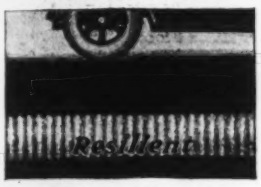
CANTON, OHIO, U.S.A.

The A-B-C of Culvert Engineering



Corrugated Culverts give to stress in any direction.



Corrugated Culverts endure pounding and reversals of stress better than any other type.

ARMCO Culverts have been proved uncrushable under a fill equal to diameter.

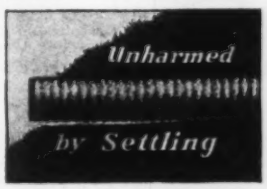
A Few culverts can have an adequate foundation. They are usually located in depressions filled high with silt. In most instances, it is totally impractical to dig deep enough to give any structure a bed-rock base in such a location.

B When foundations are at all adequate, they are usually the most expensive part of the installations —an expense far in excess of that required.

C There is but one type of Culvert that will endure without resting upon a solid base. The well made Corrugated Culvert resists the forces of shifting, heaving earth, settling, freezing and the weight and pound of traffic.

Stress may disarticulate a weak or jointed culvert.

ARMCO Culverts do not absorb water. They do not "weather" like porous materials.



Settling and earth creepage leave the Corrugated Structure efficient and unharmed.

and—

This Little Dot

If this rectangle were a sheet of ARMCO INGOT Iron, the little dot would represent all the impurities. If the dot were the least bit larger, due to the addition of any other material, the result would not be ARMCO Ingot Iron. ARMCO has less than 1 part impurities to every 625 parts of pure ferrite—less than 1 *ounce* of impurities to every 39 *pounds* of pure iron.

ARMCO
Ingot Iron

The A-B-C of Corrugated Culverts

A The material of Corrugated Culverts must resist rust.

B Rust resistance requires high purity of the iron used, for two reasons—iron of high purity *resists rust of itself,* and it takes and holds more firmly a protecting coat of galvanizing.

C ARMCO Culverts are made of ARMCO Ingot Iron, the purest commercial iron produced, and of the highest UNIFORM purity. The ARMCO Culvert you buy tomorrow is made of exactly the same material that is found in ARMCO Veterans under the highways and railways of the world — the culverts that have made ARMCO the world's standard for durability and economy.

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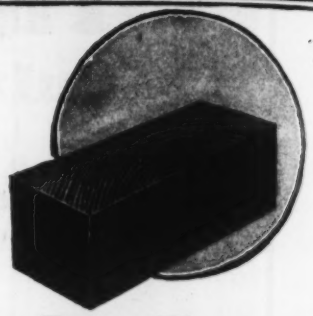

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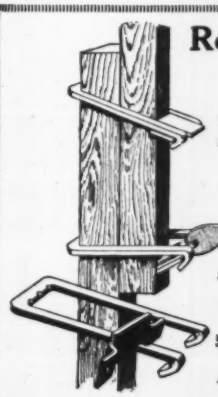

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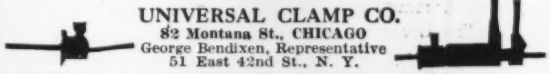

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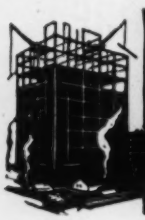

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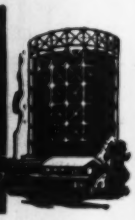

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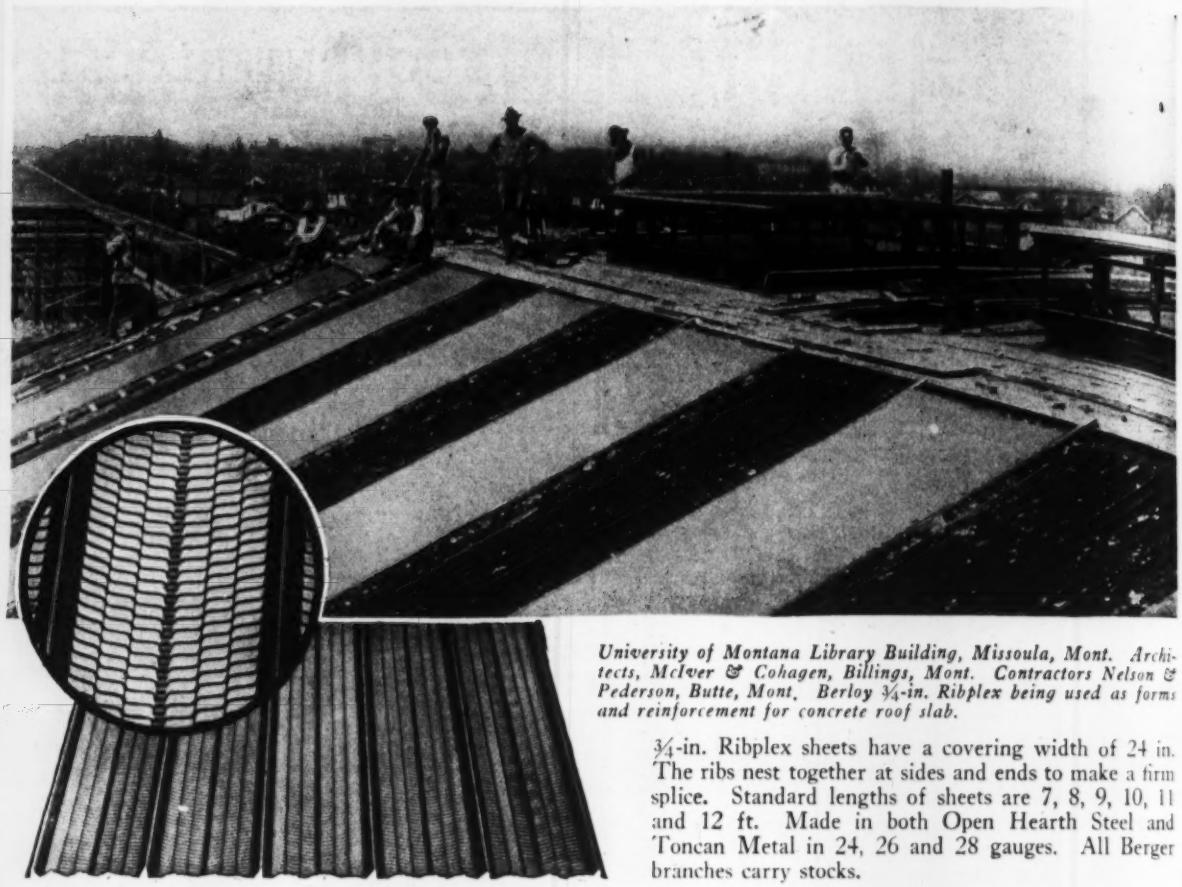

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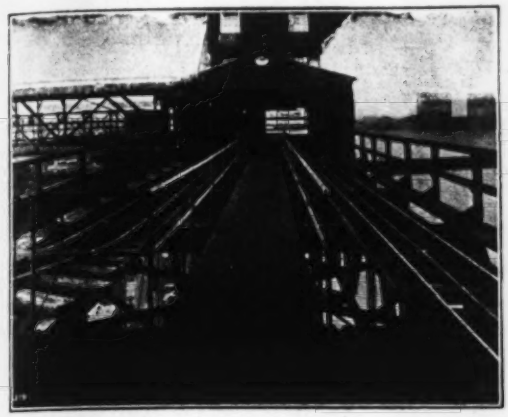

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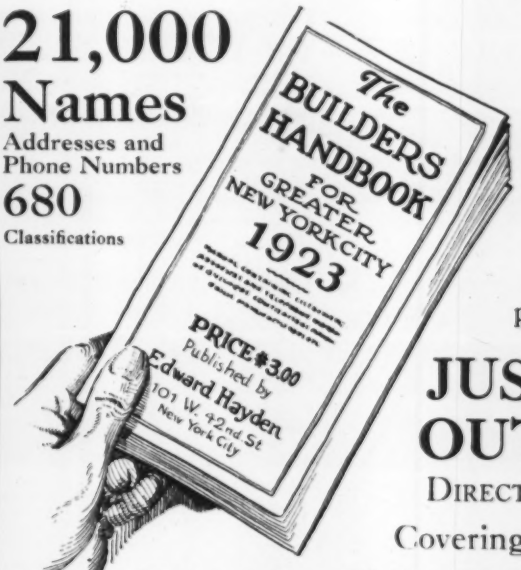

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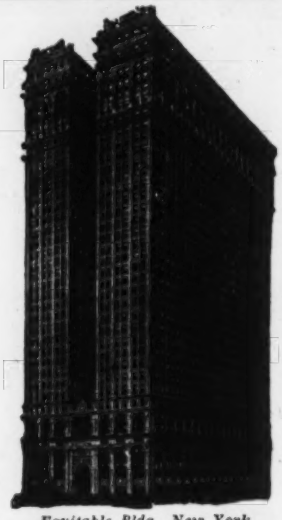

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FOR PERMANENT CONCRETE
HARDENS WATERPROOFS

FOR HARDENING & WATERPROOFING CONCRETE

A liquid integral hardener makes concrete dustless and waterproof. Used successfully for nineteen years. Write for details.
ANTI-HYDRO WATERPROOFING COMPANY, Newark, N. J.

CEMENT GUNS
Bought—Sold—Rented
GET OUR PRICES AND ESTIMATES BEFORE BUYING.
Cement Gun Construction Co.
537 So. Dearborn St. CHICAGO, ILL.
Oliver Building PITTSBURGH, PA.

TECHNICAL PAINTS
for every purpose. Bridge Paints and Metal Preservative Paints of all kinds. Fume Resisting, Acid Resisting, Heat Resisting, Mill White, Concrete Paints, etc.
CHEESMAN-ELLIOT CO., INC., *Paint Makers*
Established 1876
23 Flatbush Ave., Brooklyn, N. Y.
Works: Williamsport, Pa., and Brooklyn.

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STEEL CONSTRUCTION FOR LIGHT AND VENTILATION IN BUILDINGS

SIDE WALL STEEL SASH

All types for factory, power house and office. Continuous steel sash for monitors and sawtooth construction. Operating devices for all types of movable sash and doors. Steel skylight and ventilators, steel office partitions, hinged steel doors, sliding steel doors.

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CHESTER, PA.

INFORMATION GLADLY FURNISHED

FOR CORRECT METHODS OF USING CONCRETE

VULCANITE PORTLAND CEMENT CO
PHILADELPHIA BOSTON NEW YORK

Business Established 1832

The Lawrence Cement Co.
No. 302 Broadway New York, N. Y.

Selling Agents for

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PORTLAND CEMENT

In Successful Use a Third-Century

PENNSYLVANIA
PORTLAND CEMENT

Highest Quality

Manufactured by

Pennsylvania Cement Co.

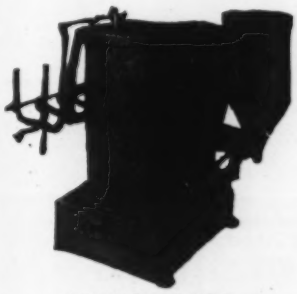
New York Boston Philadelphia Buffalo

Results* Are Best Measured in *Dollars and Cents

Clean, count and bale your cement sacks in one handling. An automatic counter and a baler are a part of the regular equipment.

"Saves 1 sack of cement from 100 empties."

The sack is dropped over beaters which hold it open. A few strokes is enough to clean thoroughly.



Style B Power Driven

This means a large saving in cement, time, labor and freight which is all yours because the machine is inexpensive and the power consumption low. Firms that know their costs are our best customers.

THE WILLSEA WORKS

Successors to Century Cement Machine Co.
Builders of special machinery. The Hercules Concrete Block and Trimming Stone Machine.
60 Brown's Race, Rochester, N. Y.

HENDRICK SCREENS
for every purpose

ELEVATOR BUCKETS (plain and perforated) STACKS AND TANKS
GENERAL SHEET AND LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL PLATE CONSTRUCTION

HENDRICK MFG. CO. CARBONDALE, PENNA.
New York Office, 30 Church St. Pittsburgh Office, 544 Union Trust Bldg.
Hazleton, Penna., Office, 705 Markle Bank Bldg.

WONDER MIXERS

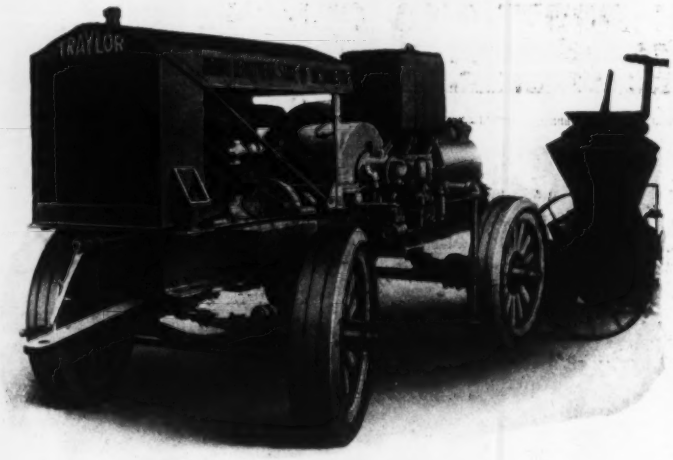
The ORIGINAL Single Opening Tilting Mixer — ball bearing drum — pouring discharge—fast visible mixing action.

Ask for the new WONDER catalog
It contains the biggest values on the market.
Write today

Construction Machinery Company
427 Vinton Street Waterloo, Iowa

Here's the way you've always felt a Compressor should be mounted!

The TRAYLOR PORTABLE GASOLINE COMPRESSOR



Made in two sizes. Also mounted on standard iron wheels, if desired.

If you've ever had a compressor wracked to pieces by the bumps—thumps—jumps of transportation, you'll welcome this "rubber heel" mounting with the sturdy wheels, axles and springs to back it up! This is the last word in compressor efficiency now—this is the perfected Traylor, with the slow speed, horizontal straight-line drive, worm gears and pump for delivering water under pressure. Runs equally well on gas or current. *Write for Bulletins.*

Cement-Gun Company, Inc.
Allentown, Pa.
New York Chicago Pittsburgh
Los Angeles Laredo, Texas Seattle
Agents in Eastern Canada:
General Supply Company of Canada
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The Underpinning & Foundation Co. 342 Madison Ave. New York City
Difficult Foundations
Pneumatic, Steel, Concrete and Wooden Pile Foundations. Bridge Piers; Underpinning Heavy Building.
"HERCULES" STEEL PILES

STAR BRAND BLOCKS
Are Standard
For any lift or difficult working condition they are safest, strongest and most durable.
Boston & Lockport Block Co.
108 Condor St., East Boston, Mass.
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VULCAN IRON WORKS
THE WARRINGTON (VULCAN)
STEAM PILE HAMMERS
PILE DRIVERS AND PILE DRIVING MACHINERY
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Best for Any Foundation
High Safety Factor Low First Cost
Rapid Construction No Maintenance
Send for Cost Data, Literature, Photos.
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MacARTHUR PEDESTAL PILE
The MacARTHUR METHOD insures maximum foundation safety under every working condition in all kinds of soil.
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"Sullivanize" Your Drill Steel

Sullivan Drill Steel Furnace and Drill Sharpener, showing compact installation.

DON'T handicap your rock drills or delay your runners by using steel that is improperly heat-treated, badly formed or poorly sharpened.

Train your blacksmith to put as much footage as possible into each steel he sends on the job.

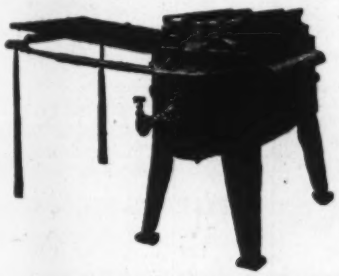
Sullivan Furnaces and Sharpeners Provide Drill Steel Quality Insurance

The Sullivan oil or gas Furnace heats the steel gradually, evenly, while electrical devices prevent overheating or burning, and indicate, also if the steel is **not** hot enough for working or tempering.

The hammer-forging action of the Sullivan Sharpener refines the grain of the metal, and with each repeated sharpening renders it tougher, less liable to wear or breakage.

Sullivan-sharpened bits are made to exact shape and gauge by tool steel dies and dollies. They "follow" accurately in the drill hole.

With the Sullivan gauging device, genuine double taper bits are quickly and correctly formed, providing increased drilling speed.



Sullivan Furnaces and Sharpeners insure that each steel is of uniform hardness, of exact shape, that the steel quality you paid for is preserved and that you will obtain the maximum feet of hole from each steel.

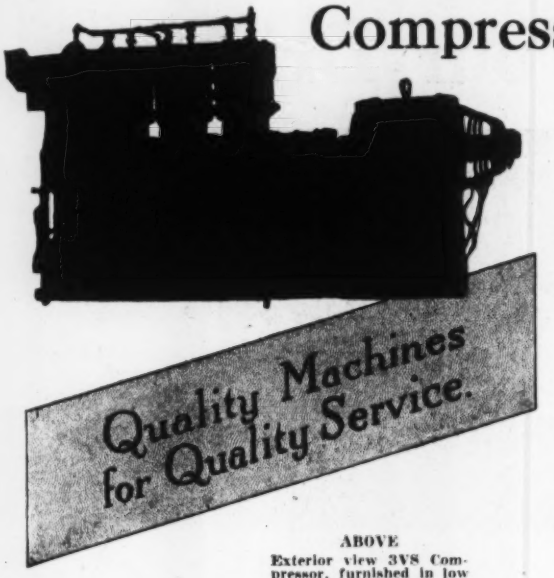
Sharpeners, Bulletin 472-E

Furnaces, Bulletin 474-A

Send for New Steel Handbook and Instructions, 80 pages, free, No. 472-G

SULLIVAN MACHINERY COMPANY

124 SOUTH MICHIGAN AVE., CHICAGO, ILLINOIS U.S.A.



ABOVE
Exterior view 3V8 Compressor, furnished in low pressure sizes of 250 to 520 cu. ft. displacement; high pressure sizes, 150 to 335 cu. ft.

Compressed Air at Minimum Cost!

THE price you pay for compressed air depends on the cost of air compressor maintenance and operation.

It is traditional of Westinghouse-National Compressors that they remain in perfect running condition for years without requiring expensive repairs or replacements.

As to cost of operation—figuring power as the chief item—our distinctive Automatic Control effects a saving that is quickly reflected in production costs.

Westinghouse Traction Brake Company
General Offices and Works: Wilmerding, Pa.

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Boston, Mass.	Los Angeles	New York
Chicago, Ill.	Mexico City	Pittsburgh
Columbus, O.	St. Paul, Minn.	Washington
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Houston, Tex.		San Francisco

WESTINGHOUSE-NATIONAL
AIR COMPRESSORS

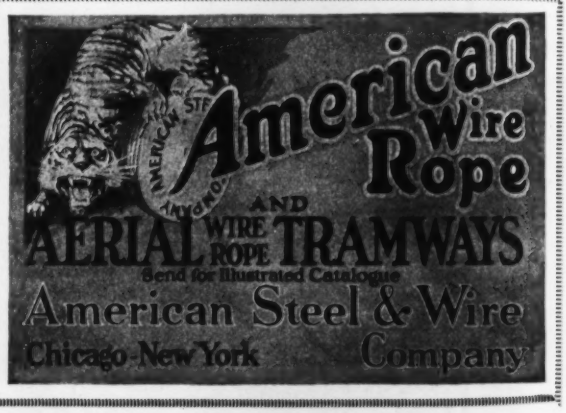
If it can't be done with McKiernan-Terry Pile Hammers— it can't be done at all!

WRITE FOR BULLETIN 31

McKIERNAN-TERRY DRILL COMPANY

Rock Drills Pile Hammers Lifting Jacks
Mining and Quarrying Machinery
13 Park Row, New York
Works at Dover, N. J.

Agencies in the following Cities: Boston, Chicago, Pittsburgh, Cleveland, Detroit, St. Paul, San Francisco, Columbus, O., New Orleans, Philadelphia, Portland, Oregon. *Foreign Representatives:* British Steel Piling Co., London, England.



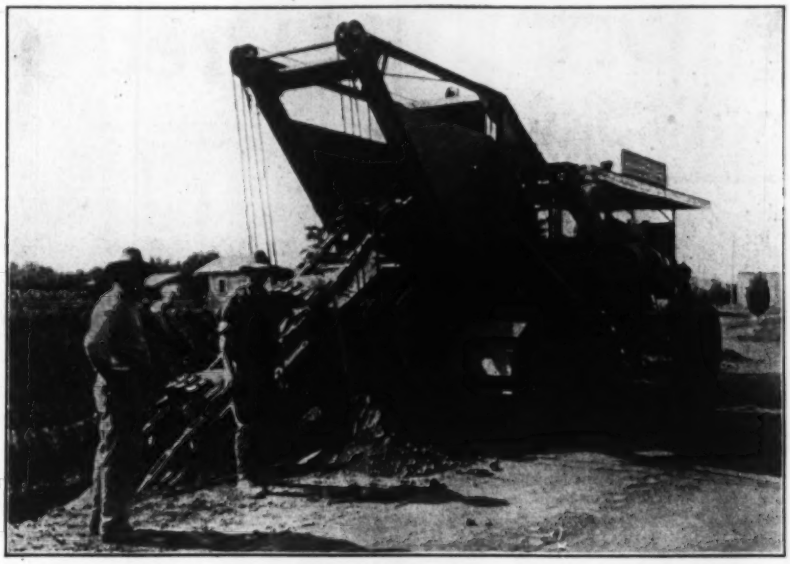
Rental or Sale

POTTER
Trench Machines, Buckets
POTTER MFG. CO.
3505 E. Washington St.,
INDIANAPOLIS, IND.

"MORETRENCH" Conveying Excavator

Digs and backfills trenches in one operation. Any size—any depth. See our big advertisement next week. Write or phone.

Moore Trench Machine Co.
Rockaway, New Jersey

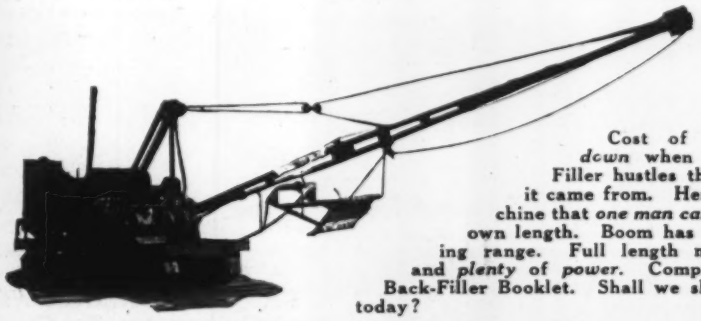


It's a Comfortable Sort of Feeling

Makes you feel kinda good to know that the company you've bought a machine from is going to take care of you. Here's a contractor way out in Los Angeles—Harper D. Churchill. He wrote us:

"I chose a Buckeye after carefully checking their performance and specifications. At this instance, I wish to go on record that the Buckeye organization is the squarest and easiest to do business with that I know of. Your wants are taken care of promptly and efficiently. They make you feel as though they are interested in your welfare. This alone would make us give them all our business."

That's putting it pretty "strong." But you'll find most Buckeye owners *strong for Buckeyes* and the *service* that goes with 'em. Put a Buckeye on your next job—you'll find we're right when we say "you'll always be glad you bought a Buckeye."



Going Down!

Cost of back-filling *going down* when a Buckeye Back-Filler hustles the dirt back where it came from. Here's a one-man machine that *one man can run.* Turns in its own length. Boom has 160 degree swinging range. Full length multiplane traction and *plenty* of *power.* Complete details in the Back-Filler Booklet. Shall we shoot you a copy—today?

The Buckeye Traction Ditcher Company, Findlay, Ohio

Manufacturers of Trench Excavators (both Wheel and Chain-and-Bucket Types), Pipe-Line Trench Excavators, Tile and Open Ditchers, Back-Fillers, Pipe Screwing Machines, Curb Diggers and Clay Diggers.

Branch Sales Offices:

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John Birch & Co., Ltd., 2, London Wall Buildings, London, E. C. 2, England

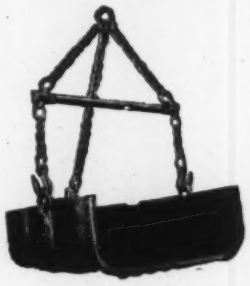
Buckeye

UNION
Cableway Skips

This company is probably the largest producer of heavy cableway skips in this country. We fill orders for hundreds every year and have executed single orders for two hundred and more.

STYLE K

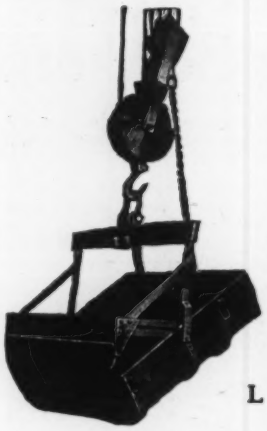
UNION STANDARD TYPE SKIP with spreader bar and chains built in capacities up to 10 cubic yards. (Illustrated.)



K

STYLE L

UNION GATE SKIP (Patented). A skip permitting full loading of material such as coal, sand, earth, etc. Built in capacities up to 10 cubic yards. (Illustrated).



L

STYLE M

UNION STEEL SCALE BOX, with chains and dumping trigger. Built in capacities up to 2½ cubic yards. (Illustrated).

STYLE N

UNION WOOD SCALE BOX. Built of oak with iron mountings.

STYLE O

UNION EXPORT SKIP. A skip developed by us for export. Sloping sides permit nesting, thereby saving a large percentage of the ocean transportation charges.

M

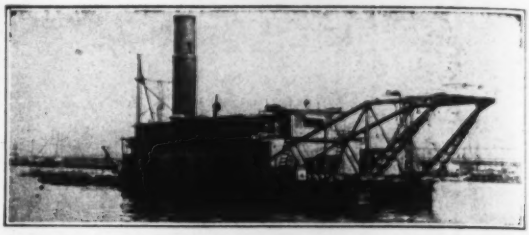
Write for new Catalog published April, 1923.

UNION IRON WORKS
Lackawanna Siding
Hoboken, N. J.

UNION DOUBLE ACTING HAMMERS

DRIVE AND PULL

Dredging



Filling, Land Reclamation, Canals and Port Works

River and Harbor Improvements
Deep Waterways and Ship Channels

We are equipped to execute all kinds of dredging, reclamation and port works anywhere in the United States.

CONTRACTORS to THE FEDERAL GOVERNMENT

Correspondence Invited from Southern Officials and Corporate and Private Interests Everywhere.

Largest Plant **Longest Experience**

Atlantic, Gulf and Pacific Co.

New York
21 Park Row

Houston, Texas
Scanlon Bldg.

CONVERTIBLE Attachment Operates ¾-yd. clamshell, skimmer, scoop, ditcher scoop, drag line, shovel, magnet, or hook.

With Skimmer Scoop

As a Ditcher

BAY CITY CRANE EXCAVATOR

Model 16

One machine—Many uses
The Versatile Bay City never need be idle.
A profitable investment for every contractor.

Write for Circular 12

Builders of

CRANES
EXCAVATORS
LAND DREDGES

Walking, Track Crawler and Floating Type

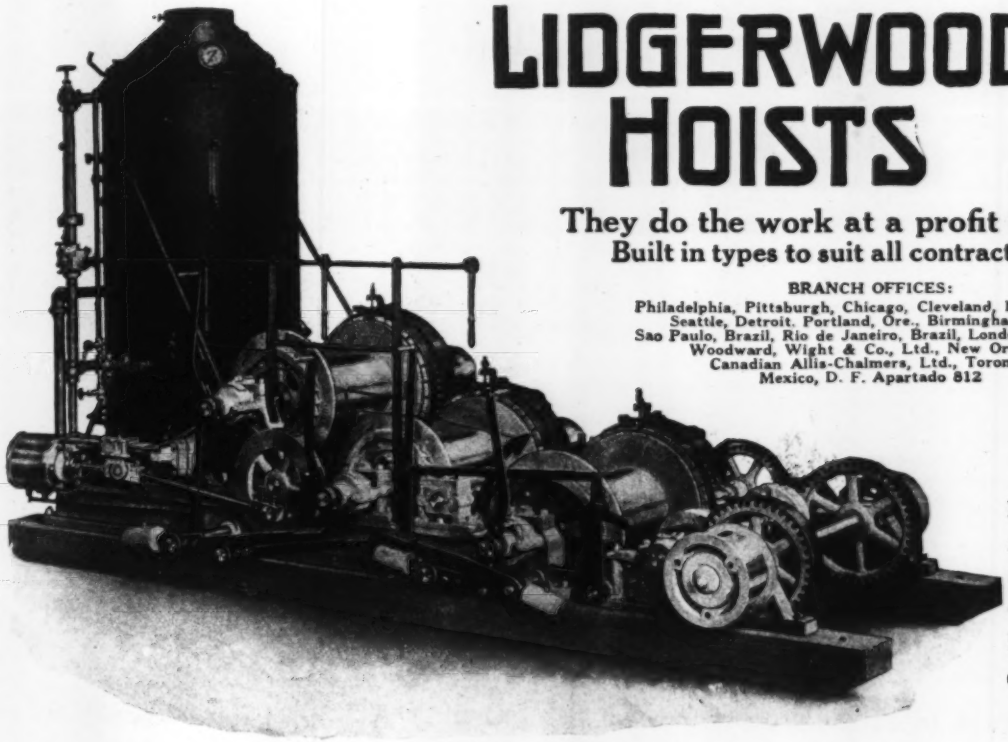
BAY CITY DREDGE WORKS
2603 Center Ave., Bay City, Mich.

See Skimmer Scoop ad in last issue.

SAUERMAN
JUNIOR
CABLEWAY

For small gravel pits and light work in digging material from underwater, this inexpensive new type of cableway excavator is a labor-saver. Just like our large standard machines only not so heavy and hoist is portable. **Ask for Bulletin 123.**

SAUERMAN BROS.
432 S. Clinton St.,
CHICAGO



LIDGERWOOD HOISTS

They do the work at a profit to the user
Built in types to suit all contractors' uses

BRANCH OFFICES:
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HOISTS
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CABLEWAYS

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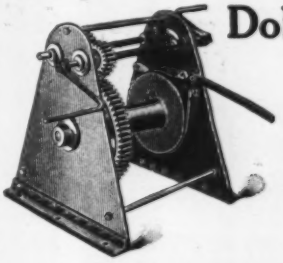
NATIONAL

15 HP. with Le Roi Engine

Gasoline Hoists

Send for Catalog

National Hoisting Engine Co.
Office and Works
300 Bergen St.,
Harrison, N. J.



Dobbie Derricks and Hoists

Stocks of Fittings, Blocks, Sheaves, Winches, etc., carried by our agents—
G. S. Green Co., New York.
Beckwith Machinery Co., Pittsburgh, Cleveland, Charleston, W. Va.
P. I. Perkins Co., Boston

DOBBIE Foundry & Machine Co.
Manufacturers
Niagara Falls, N. Y.

PATTERSON
Extra Heavy Snatch Blocks

Double cross riveted. Self-lubricating sheaves. Hand forged swivel hook. Inside reinforcing strap. Widely used on many big construction jobs.

Write for Catalog No. 22

W. W. Patterson Co.,
50 Water Street, Pittsburgh, Pa.

STROUDSBURG HOISTING MACHINERY
STEAM—ELECTRIC—GASOLINE
FOR ALL PURPOSES
Catalog Upon Request
STROUDSBURG ENGINE WORKS
Stroudsburg, Pa.

Dependable Wire Rope

HERCULES WIRE ROPE

Hercules (Red Strand) Wire Rope is wear resisting at every point. Its unusual combination of strength, toughness and elasticity make it economical as well as dependable.

Established 1857

A. Leschen & Sons Rope Co.
St. Louis, Mo.
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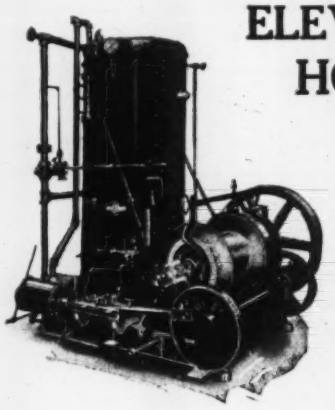
TRADE MARK
MUNDY
ESTABLISHED 1869

BRICK MASON'S ELEVATOR HOIST



IDEAL for use in building construction for light hoisting. It is especially adapted for double elevators carrying building materials, being provided with large elevator sheave wheel clutch to the drum shaft.

J. S. MUNDY HOISTING ENGINE CO.
Manufacturers of High Grade Hoisting Equipment
New York Sales and Export Office: 30 Church Street
NEWARK, NEW JERSEY, U. S. A.

Clyde's Greatest Asset—

Hundreds of satisfied customers who always specify Clyde Equipment on repeat orders.

You'll take pride in your Clyde!

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DULUTH, MINN., U. S. A.
Sole Distributors for Clyde Iron Works
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CLEVELAND CRANES

250 LBS. TO 500 TONS

Designed for the Power Plant
The Cleveland Crane and Engineering Co.
Wickliffe, Ohio
Sales Offices: 50 Church St., New York City; 511 Farmers Bank Bldg., Pittsburgh, Pa.; 557 Railway Exchange Bldg., Chicago, Ill.; 2401 Chestnut St., Philadelphia, Pa.; 149 E. Larned St., Detroit, Mich.; 500 Arch St., Pittsburgh, Pa.

"TOLEDO CRANES"

Fulfill Every Requirement
Save Time, Labor and Space

THE TOLEDO CRANE CO.
BUCYRUS, OHIO

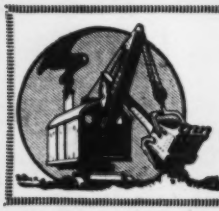
MOORE SPEEDCRANE

A lightweight, flexible speed crane that represents the greatest advance made in crane construction in the past 20 years.

Has a single universal clutch that swings the crane, propels the machine, raises and lowers the boom.

Send for literature.

MOORE BROS.
New York Life Bldg., Chicago, Ill.



——"Marions" Pioneered In Big Operations— They Still Lead

The Marion Steam Shovel Co.
Marion, Ohio, U. S. A.

BROWNING LOCOMOTIVE CRANES

A Giant's Strength With a Wizard's Deftness

THE BROWNING COMPANY
East 162nd St. & Waterloo Rd
Cleveland, Ohio

Roebling Welding Wire

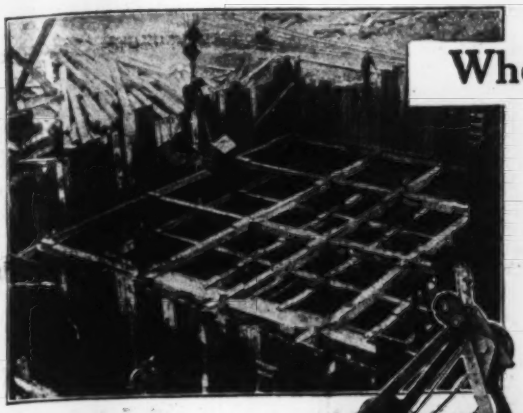
For Electric Welding
For Oxy Acetylene Welding

John A. Roebling's Sons Company
Trenton, N. J.

CRANES All Types

WHITING CORPORATION
HARVEY, ILL. U.S.A.

Foundry Equipment



When the digging looks *"Too tough for a clamshell"*— use the WILLIAMS *Hercules*

Take the advice of concerns like the Kirkpatrick Sand & Cement Company, who have tried out different makes of buckets in the hardest digging. They will tell you that the WILLIAMS "Hercules" has dug successfully in material that was too hard for an orangepeel.

The "Hercules" digs hardpan, tough clay, cemented gravel and imbedded boulders.

If you have hard excavating to do, you don't have to experiment. The experience of many contractors has demonstrated the ability of the "Hercules" to dig hard materials—and the *reliability* of this powerful bucket is covered by the regular WILLIAMS guarantee: *All parts guaranteed against breakage.* What other bucket but a WILLIAMS can you get for the hardest kinds of excavation, with a guarantee like this behind it?

If you are going to have some hard clamshell excavation, just describe the work and we will tell you what you can expect to do with a WILLIAMS "Hercules". Write us.

"In the past 15 years, we have tried many different makes of clamshell and orangepeel buckets, but we have found that the WILLIAMS clamshell is the best digging bucket we have ever used." *A. Mohan, Kirkpatrick Sand & Cement Co., Birmingham, Ala.*

The WILLIAMS Closing Arm, with sheaves in tandem, gives the "Hercules" unrivalled power for biting into hard materials.

Our 60-page catalog describes the WILLIAMS "Hercules," and other WILLIAMS 1-line, 2-line, 3-line and 4-line clamshells. It contains interesting photos, blueprints and descriptions of the 12 standard types of clamshells in the complete WILLIAMS line—for any class of work, any kind of crane or derrick. Write for Catalog N.

G. H. WILLIAMS CO., Erie, Pa., U. S. A.

WILLIAMS

QUICK-ACTING CLAMSHELLS

All Parts Guaranteed Against Breakage

Get a Practical Crane

Furnished in mounting and power to suit requirements of buyer.

BOOM can be raised or lowered under load while operating—this is one of the practical features, exclusive with Byers.

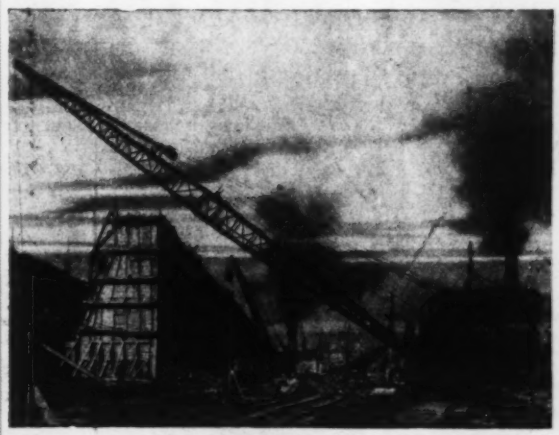
Write us for interesting bulletins.

***BYERS* Model 10**

Full Circle Crane

Also Auto-Cranes, Truckcranes, Buckets, Hoists, etc.

THE BYERS MACHINE COMPANY, 250 Sycamore St., Ravenna, O.



Speed in Construction

INDUSTRIAL CRANES

are readily adapted for Excavation Work, Pile Driving, Concrete Work, Handling Great Iron, Timber and Steel Units.

Our Golden Anniversary Catalog now ready for mailing

INDUSTRIAL WORKS

BAY CITY **MICHIGAN**

NEW YORK CHICAGO PHILADELPHIA DETROIT

Sales Engineers in all principal cities

1873 **BUILDERS OF CRANES FOR 50 YEARS** **1923**

Chicago, Railway Exchange Bldg. **New York, 30 Church St.**

O. S. Dependable

Buckets
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All Types
All Sizes
For All
Purposes

ORTON & STEINBRENNER CO.
Offices: Chicago Ill.
Factory: Huntington, Ind.

OSGOOD
Heavy Duty Steam Shovels

Have you seen one of them at work? A regular giant for digging. Easy to operate—low operating and maintenance cost—and fast. Will go most anywhere. Has interchangeable trucks and can be converted, easily and quickly, to Clamshell or dragline.

¾ and 1 yd. capacities
Ask for Bulletin

The OSGOOD Company
Marion, Ohio, U. S. A.

VULCAN

Clamshell and Orange-peel Buckets

Dredging Buckets. Hydraulic Dredging Equipment. Complete Dredges. All work designed and finished in our own plant. Backed by 50 years' experience. Repairs to all types of Buckets and Dredges.

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VULCAN
Iron Works, Inc.
Jersey City, N. J.

McMYLER-
buckets

clam-shell and orange peel

Locomotive Cranes · Bridge Cranes
Equipment for Moving Materials

THE McMYLER-INTERSTATE CO.
CLEVELAND

INTERSTATE

LAKEWOOD CLAM SHELLS

for digging, dredging and handling - send for descriptive bulletin

The Lakewood Engineering Company
Cleveland, U. S. A.

Complete Paving Plant
Mixers, Batch Boxes, Cars, Track, Finishing Machines, Subgraders, Locomotives

Construction Plant
Steel Towers, Chuting Plant, Heavy Duty and Small Mixers, Cars, Track, Hoppers, Cars

CLAMSHELL BUCKETS

Built by master builders for every kind of digging or rehandling. One, two, three or four line buckets built to fit your crane and fit your work.

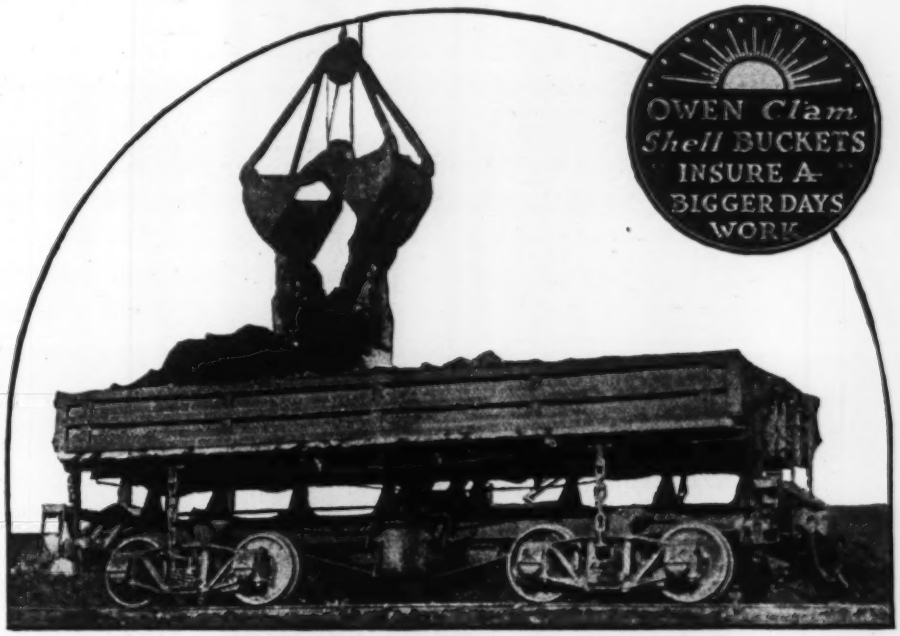
BLAW-KNOX COMPANY
601 Farmers Bank Building, PITTSBURGH, PA.

HAYWARD BUCKETS

Clam Shell, Orange Peel, Electric Motor, and Drag Scraper Buckets for all excavating, dredging, and rehandling purposes. Ask for Catalog 43, or consult our engineers gratis.

The Hayward Co., 48-50 Church St., N. Y.

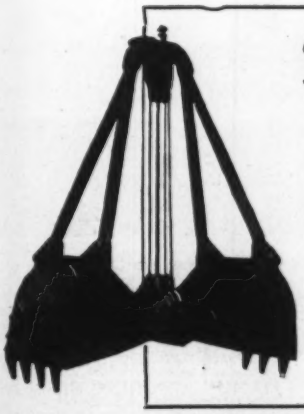
OWEN



RAILROAD CONTRACTORS

prefer the Owen Bucket because of its adaptability to the work at hand. They have found the "Owen" equally efficient when loading or unloading sand and crushed stone as when digging for abutment footings. They buy *one* bucket now for both classes of work where *two* types were used heretofore because the "Owen" adjustable features of weight, digging power and closing speed enables it to meet every material-handling requirement in the wide range of work encountered in railroad construction. This feature is illustrated and briefly described under Reason No. 4 in Pamphlet No. 11. This is one of 8 reasons based upon 8 new and exclusive features of bucket construction, outlined below, contained in this pamphlet covering our Type "J"—The Railroad Contractor's Bucket. Act now. Get Pamphlet No. 11 for your file today.

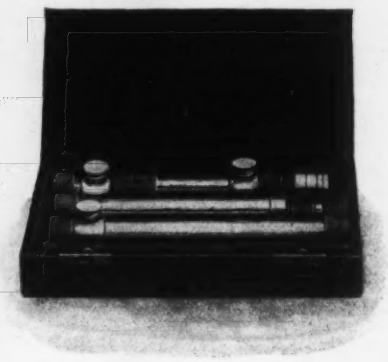
THE OWEN BUCKET COMPANY
533 Kirby Bldg., Cleveland, O.



THERE ARE 8 REASONS

why Owen type J Buckets Cost Less to Operate, are more durable and insure a bigger day's work.

1. 60% of entire weight is in the center, and at the lowest point of the bucket when open.
2. Undiminished closing power of five to one.
3. Lever type arm brackets increase digging power.
4. Closing speed, digging power and weight adjustable.
5. Fair leads to closing cable insure maximum life.
6. Cutting edges or teeth hit the material first.
7. V-shape arm construction preserves rigidity.
8. Hinge assembly guaranteed unbreakable.



Color and Turbidity of Water Determined with Accuracy

Water is often "colored" by vegetable matter or "turbid" from mud and silt carried in suspension. When water is used for a municipal supply, color and turbidity are always objectionable; when furnished to industries either quality is usually harmful to the products.

The U. S. Geological Survey Design Color and Turbidity Determining Instruments based on the Platinum-Cobalt methods of color measurement devised by Allen Hazen, C. E., make possible at small cost the scientific determination of color and turbidity of water.

We are prepared to furnish complete sets of these instruments packed in neat, pocket-size cases ready for immediate use in the field.

Send for Bulletin No. 41

Builders Iron Foundry, Providence, R. I.

"Builders of the Venturi"

NEW YORK CHICAGO PHILADELPHIA PITTSBURGH ATLANTA DALLAS
SAN FRANCISCO LOS ANGELES KANSAS CITY PORTLAND, ORE. TORONTO OTTAWA

"WATCH DOG"

WATER METERS

Accurate
Durable
Efficient

—

GAMON METER COMPANY
Main Office and Works:
NEWARK, NEW JERSEY

HERSEY DISC METER, MODEL HF which is the Highest type of Frost protected Meter and **HERSEY DISC METER, MODEL HD** which is the Highest type of Divided or split-case Meter, are the product of thirty-five years' experience and refinement in the manufacture of Water Meters. These Models excel all Meters of all makes in all those essentials which go toward making exceptionally desirable Meters.

HERSEY MANUFACTURING COMPANY
Boston, New York, Chicago, Columbus, O., Philadelphia, Atlanta
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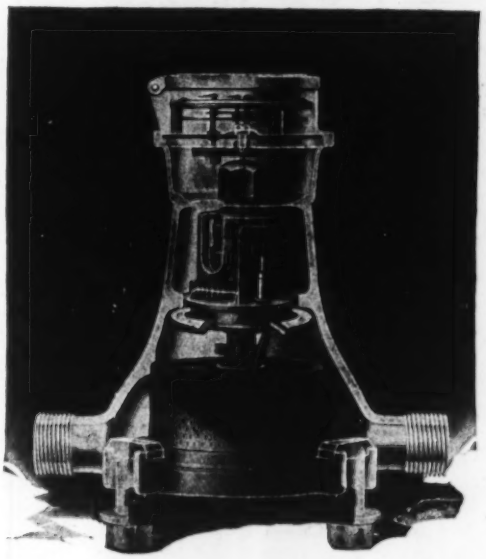
Trident Meters



Made where the Spirit of Craftsmanship dominates automatic machinery

A series of eight human-interest letters describing every step in the making of Trident Meters—get acquainted with these famous "Bill to Jim" letters—send for your copies today.

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Pioneers in Meter Progress

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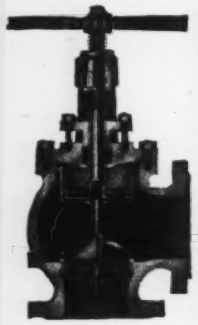
Made for maximum service not merely the average

TRADE JENKINS MARK

Jenkins Bros

Automatic Equalizing Stop and Check Valves

(Also known as "Non-Return" Valves)



This valve automatically shuts off the flow of steam from header to boiler in case a tube should burst or other internal rupture occur, thereby suddenly reducing the pressure in that boiler. They prevent one boiler from working at a lower pressure than another.

Their installation makes it impossible to accidentally turn steam into a boiler which is being cleaned, because the valve can be opened only by the pressure in the boiler to which it is attached.

Made in extra Heavy Globe and Angle Patterns — Iron Body for working steam pressures up to 250 pounds; Cast Steel up to 350 pounds.

Sectional view, Fig. 293. Extra Heavy Iron Body Automatic Equalizing Stop and Check Valve, Angle Pattern.

Send for descriptive folder

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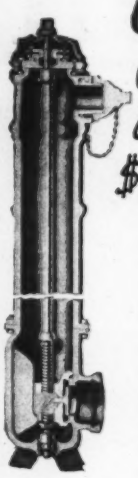
524 Atlantic Ave.....Boston
133 No. Seventh St.....Philadelphia
646 Washington Blvd.....Chicago

Always marked with the "Diamond"

Jenkins Valves

2734-J SINCE 1864



Over 3,000 cities and towns are guarding against $1,000 a minute fire loss!

They were Ludlow Fire Hydrants—because of their simple construction, non-freezing feature, freedom from binding and water hammer, and the patented device which prevents flooding, should they be broken. As can be seen, the Ludlow Fire Hydrant is of the gate type.

Get the Ludlow Catalog on Valves and Hydrants.

The Ludlow Valve Mfg. Co.

Troy TRADE LUDLOW MARK **New York**

BRANCHES: New York, 62 Gold Street; Boston, 112 Water Street; Philadelphia, Harrison Building; Pittsburgh, First National Bank Building; Chicago, 633-635 The Rookery; Kansas City Office, R. A. Long Building; San Francisco, Calif., W. P. Horn Co., Rialto Building; Los Angeles, Calif., W. P. Horn Co., Kerckhoff Building.

Southern Representative:
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WATER METERS

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Frost Bottom

KEYSTONE
COMPOUND

EUREKA
Current

KEYSTONE
All-Bronze

PITTSBURGH METER COMPANY
East Pittsburgh, Pa.

NEW YORK—50 Church St.
CHICAGO—5 So. Wabash Ave.
KANSAS CITY—Mutual Bldg.
COLUMBIA—1433 Main St.
SEATTLE—4038 Arcade Bldg.
LOS ANGELES—Union Bank Bldg.

WORTHINGTON

Meters

Meter frozen, showing compression of frost clamps

The upkeep cost of 35,000 Worthington Model "G" meters was four cents a year. Worthington frost clamps save money in winter, too. Ask for proof.

WORTHINGTON PUMP AND MACHINERY CORPORATION
Executive Offices: 115 Broadway, New York City
Branch Offices in 24 Large Cities W.68

Easily Carried By One Man

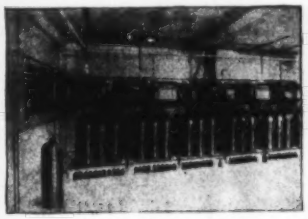
This light, durable machine will be sent on approval for 30 days trial If not as represented, send it back.

Corporation Tapping Machine

Write for latest bulletins of this and other waterworks appliances.

The A. P. Smith Mfg. Co.
East Orange, N. J.

CHLORINATION BREVITIES



340,000,000 Gallons of Water are Sterilized Each Day at the Dunwoodie Installation of W & T Apparatus for New York City's Water Supply

BEFORE chlorination the typhoid fever death rate in the cities of the United States was over 25 per 100,000.

Now with chlorination it is less than 5.

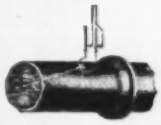
The only safe water supply is one that is sterilized.

WALLACE & TIERNAN
COMPANY, INCORPORATED
Manufacturers of Chlorine Control Apparatus
NEWARK, NEW JERSEY

8

Number Two of a series of four advertisements explaining the adaptability of Simplex Pitot Tube Meter as an accurate hydraulic measuring device.

THE SIMPLEX PITOT TUBE METER



Cut shows standard Simplex Meter Register connected to a Simplex Pitot tube which is inserted in the pipe line.

is adapted for use in water mains of any size, and for the measurement of water at any pressure and at any velocity down to ½ foot per second. It is widely employed for metering flow in:

Discharge mains from pumping station and filtration plants:

Pipe lines from storage dams and reservoirs:

Distribution mains within city limits:

Water supply lines in industrial establishments for recording the total water supplied to the entire plant, to sections of the plant, or the water supplied for special purposes, as for condensing.

Interesting data on "Pitot tubes and their practical application" sent upon request—

"Simplex Installations Give Satisfaction."

Simplex Valve and Meter Company
300 Fidelity Building, Philadelphia
MANUFACTURERS OF METERS AND RATE CONTROLLERS OF THE VENTURI TYPE, GAUGES AND OTHER WATER WORKS DEVICES

Clean Water Mains
Deliver Full Capacity
We are glad to confer with municipal officials or Water Companies.
National Methods are patented

National Water Main Cleaning Company, 64 Church Street New York

DEAN

ELECTRIC CONTROL UNIT
FOR THE MOTOR OPERATION OF LARGE GATE AND GLOBE VALVES
Write for Bulletins
PAYNE DEAN LIMITED
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GRAVER
Steel Tank and Plate Work
HEADQUARTERS
Steel Tanks and Steel Plate Work

Water Softeners, Filters and Heaters

Water Softeners for Boiler Feed-Water. Hot Process, Cold Continuous, and Zeolite Softeners. Pressure and Gravity Filters. Water Heaters. We make all successful types.

GRAVER *Corporation*
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Liquid Chlorine
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PIONEER MANUFACTURERS of LIQUID CHLORINE
Plant NIAGARA FALLS, N.Y.
Main office: 18 East 41st Street, New York *Chicago office:* 105 W. Monroe St.

ROBERTS FILTERS

WATER-*fit for use*
Filtration and Water Softening Plants
ROBERTS FILTER MFG. CO.
DARBY, PA. *New York Office. Flat Iron Bldg.*

CHLORIDE OF LIME
For Purifying Water
Pennsylvania Salt Mfg. Company, Philadelphia, Pa., U. S. A.

MICHIGAN PIPE

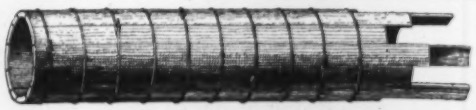
Puts Real Pipe Value Into the Trench

Low Initial Cost **Exceptional Performance**
Low Labor Cost **Shipment from Stock**

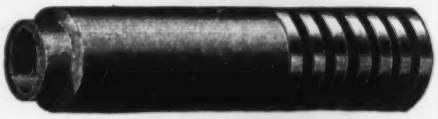
Said a waterworks engineer: "My investigation brought to my knowledge a waterworks in Indiana with 28 miles of Michigan Pipe, with an extremely low maintenance account."

The Michigan Pipe Co.
Dept. 17, Bay City, Michigan

Oklahoma City, Okla., 105 W. 16th St.; New York City, N. Y., 522 Fifth Ave.; Chicago, Ill., Leiter Bldg., 15 E. Van Buren; Boston, Mass., Room 1121, Oliver Bldg.; Cleveland, Ohio, 919 Ulmer Bldg.; Chattanooga, Tenn., 702 James Bldg.; Philadelphia, Pa., 318 Widener Bldg.; Pittsburgh, Pa., 323 Fulton Bldg.



Douglas Fir Continuous Stave
WOOD PIPE



"Standard" Wood Pipe

STANDARD WOOD PIPE CO.
Williamsport, Penn.

PACIFIC REDWOOD AND DOUGLAS FIR **PIPE**

Made in all sizes from 2 inch to 14 feet in diameter

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PACIFIC TANK & PIPE CO.
THE STANDARD SINCE '88

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WATER SOFTENING AND FILTRATION PLANTS
INTERNATIONAL FILTER CO.
333 West 25th Place, Chicago
New York Office: Woolworth Bldg.

Save 25% to 50% by using
Wyckoff Wood Pipe
instead of Cast Iron Pipe

Cheaper. Lasts as long. Delivers more water. Get catalogue.

A. WYCKOFF & SON CO., ELMIRA, N. Y.

Branches: ATLANTA, GA., H. H. White, 1503 4th Nat. Bank Bldg. SCRANTON, PA., Valley Supply Co., Coal Exch. Bldg.

WATER SOFTENING AND FILTRATION PLANTS
AMERICAN WATER SOFTENER COMPANY
4th and LEHIGH AVES. PHILADELPHIA, PA.
No affiliation or working agreement with any of our competitors

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CONTINUOUS STAVE AND MACHINE BANDED
(Plain and Creosoted)
CREO-WOOD FLUME WOOD CONDUIT
Write for Catalog

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CF&G **WATER** FILTERS SOFTENERS STERILIZERS
Industrial-Municipal-Domestic-Swimming Pools
"BEAR BRAND" LIQUID CHLORINE
CALIFORNIA FILTER CO.
The Merchants Exchange, San Francisco

ECONOMY **AMERICAN-CREOSOTED WOOD STAVE PIPE** DURABILITY
AMERICAN WOOD PIPE CO. INC.
TACOMA WASH. 30 CHURCH ST NEW YORK 140 S. DEARBORN CHICAGO

SLUICE GATES
Shear, Flap and Butterfly Valves
FLEXIBLE JOINTS
COLDWELL-WILCOX CO
NEW WINDSOR NEWBURGH N.Y.

Hand or Motor Operated Hydraulic Gate Hoists—
Standard Capacities up to 60,000 pounds
Dilts Machine Works, Inc.
Fulton, New York

Warren Foundry & Pipe Company
Manufacturers of
CAST IRON PIPE
SPECIAL CASTINGS
Bell and Spigot—Flanged—Flexible Joint—Culvert—Tubes—Milled and Plain Ends—Cylinders—Manhole Heads and Covers—High Pressure Fire Service Pipe—All Sizes.
Works: Phillipsburg, N. J.
Sales Offices { Bowling Green Bldg., New York
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TRADE **"LEADITE"** MARK
Registered U. S. Patent Office
FOR JOINTING CAST IRON WATER MAINS
NO CAULKING
Saves 50% to 75%
Leadite Joints Improve with Age
THE LEADITE COMPANY, 1232 Land Title Bldg., Phila., Pa.

UNIVERSAL CAST IRON PIPE
THE CENTRAL FOUNDRY COMPANY
41 EAST 42d ST., NEW YORK
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no packing no calking no bell holes

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USICAST CASTINGS
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General Offices: Burlington, N. J.

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Cast-Iron Water, Gas and Flange Pipe, Special Castings, Fire Hydrants, Valves, General Foundry and Machine Work.
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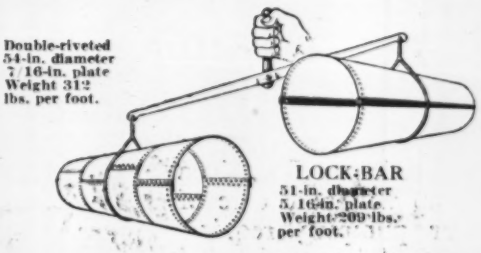
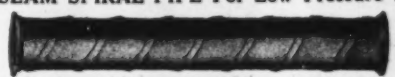
For Water, Gas and High Pressure Service



LOCK-BAR STEEL PIPE
is generally given a preference of 3 in. less diameter than riveted steel pipe for a given capacity—and will carry approximately 30% greater working pressure than riveted steel pipe of similar plate thickness. Its coefficient of friction is the same as new cast iron pipe *and never grows less.*
Altogether, a fine investment. See our full page ads. every other issue for detailed discussions. Send business card for 200-page "Handbook of Pipe."
EAST JERSEY PIPE CO.
7 Dey Street, New York City
LOCK-BAR
Before Closing
STRONG AS THE PLATE ITSELF

LOCK-SEAM SPIRAL PIPE For Low Pressure Service

Made in continuous lengths up to 30 lineal feet. Smooth on inside and true to diameter. We specialize in dredging pipe. We also make welded Spiral-Seam pipe of special analysis hard sheet steel for heavy duty service. Write for particulars.
For By-Products Recovery Pipes, Water Supply Lines, Irrigation, Sluicing and Dredging
ROBERTSON BROS. MFG. CO. 5401 So. Western Blvd., Chicago, Ill.

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Spiral Riveted Pipe—
Pipe Specialists for 48 years
Abendroth & Root Mfg. Co.
Works: Newburgh, N. Y.
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Spiral Riveted Pipe. Large Diameter. Lap Welded Pipe. Forged Steel Pipe Flanges. Flexible Ball Joints. Send for Catalog
AMERICAN SPIRAL PIPE WORKS
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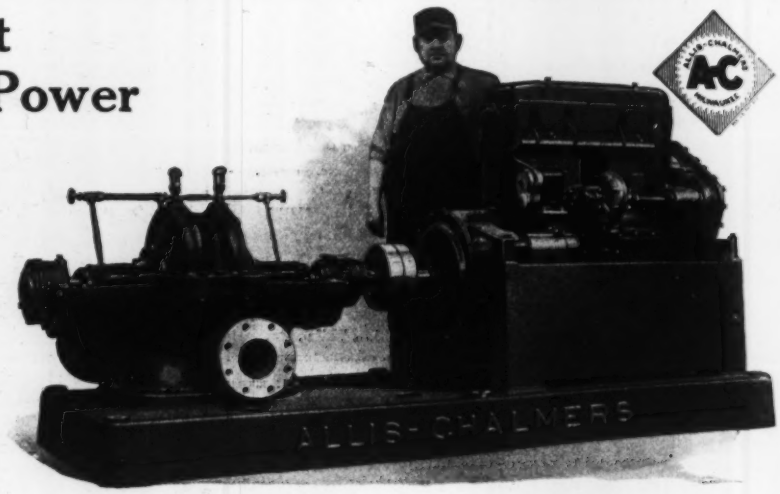
McWANE PRECALKED JOINT PIPE CAST IRON
Sizes 1¼ in. and Up
Standard fittings used. Catalog N.
McWANE CAST IRON PIPE CO.
Birmingham, Alabama
No Bell Holes

If you haven't Electric Power

A gasoline engine driven pump will take care of your pumping requirements. They can be used for gravel washing, sluicing and supplying water for steam shovels in the Rock Products industries or for fire pumps, tank pumps and general supply pumps anywhere. Our Bulletin 1632-F describes other applications.



Bulletin 1632-F Sent on Request

ALLIS-CHALMERS
MILWAUKEE, WIS. U. S. A.

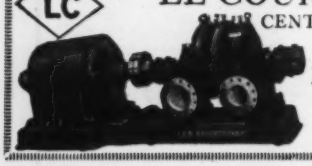
MORRIS Since 1864
CENTRIFUGAL PUMPS

Since 1864 we have been building Centrifugal Pumps, Hydraulic Dredges and Steam Engines.

Morris Machine Works, Baldwinsville, N. Y.
Agents in Principal Cities.

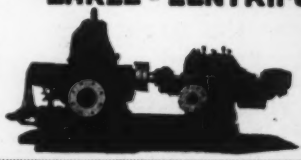
RoTURBo CENTRIFUGAL PUMPS
Manistee Iron Works Co., Manistee, Michigan

LE COURTENAY
CENTRIFUGAL PUMPS
(Lea Courtenay)



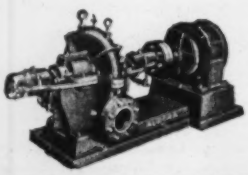
LE COURTENAY CO.
3 Main Street
Newark, New Jersey
2093-T

EARLE - CENTRIFUGAL - PUMPS



For all purposes where Centrifugal Pumps of the better class are adapted.

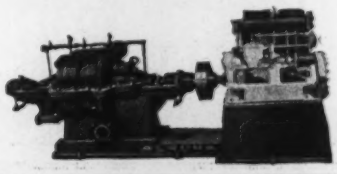
The Earle Gear & Mach. Co.
4707 Stenton Ave.
Philadelphia, Pa.



Pumps —AURORA— *Pumps*

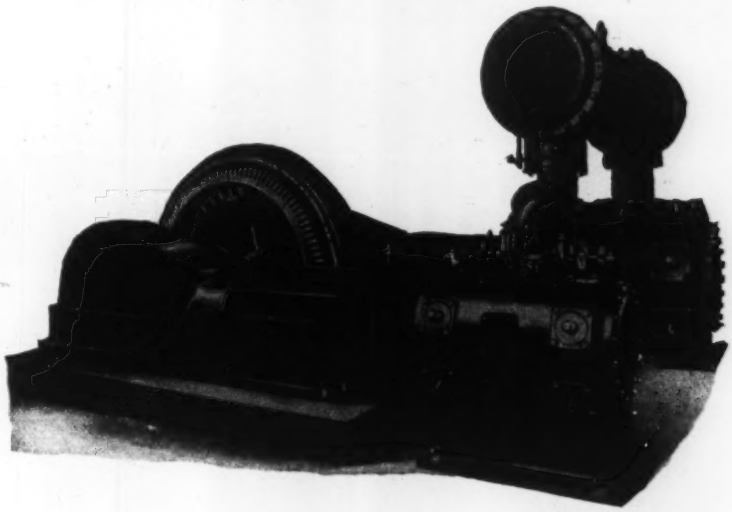
Single and Two-Stage, open impeller pumps ¾ in. to 24 in. discharge openings. Double-suction pumps, 1½ in. to 72 in. Multi-stage pumps all capacities. Deep well turbines and Power Heads. Special Mine-Sinker Pumps.

AURORA PUMP & MFG. CO.,
Loucks St., Aurora, Ill.



KERR
KERR TURBINE COMPANY
WELLSVILLE, N.Y. U.S.A.
Oldest Exclusive Builders of Steam Turbines, Reduction Gears

TURBINES KERR GEARS



. . . So They Asked FEATHER (Reg. U. S. Pat. Off.) Valve Owners

The Brooks Callaway Co., of Atlanta, Georgia, wanted an air compressor. They telegraphed several firms who had used Worthington FEATHER Valve Compressors and asked these users what they thought of their machines.

Here are the Replies:

We have two Laidlaw Feather Valve Compressors which are giving perfect satisfaction.

Concerning your wire of the twentieth, we have two Laidlaw Feather Valve Air Compressors manufactured by Worthington Company in service for two years which have given entire satisfaction.

We have 3,000 feet Laidlaw Feather Valve Compressors; three purchased 1915, three purchased 1920. Service exceptionally favorable. Maintenance very low. Efficiency very good.

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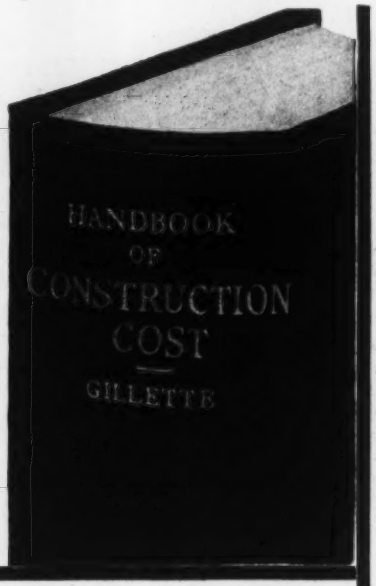

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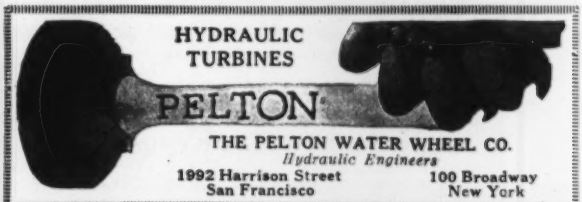

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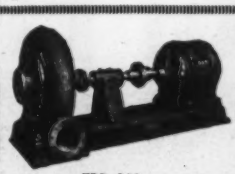

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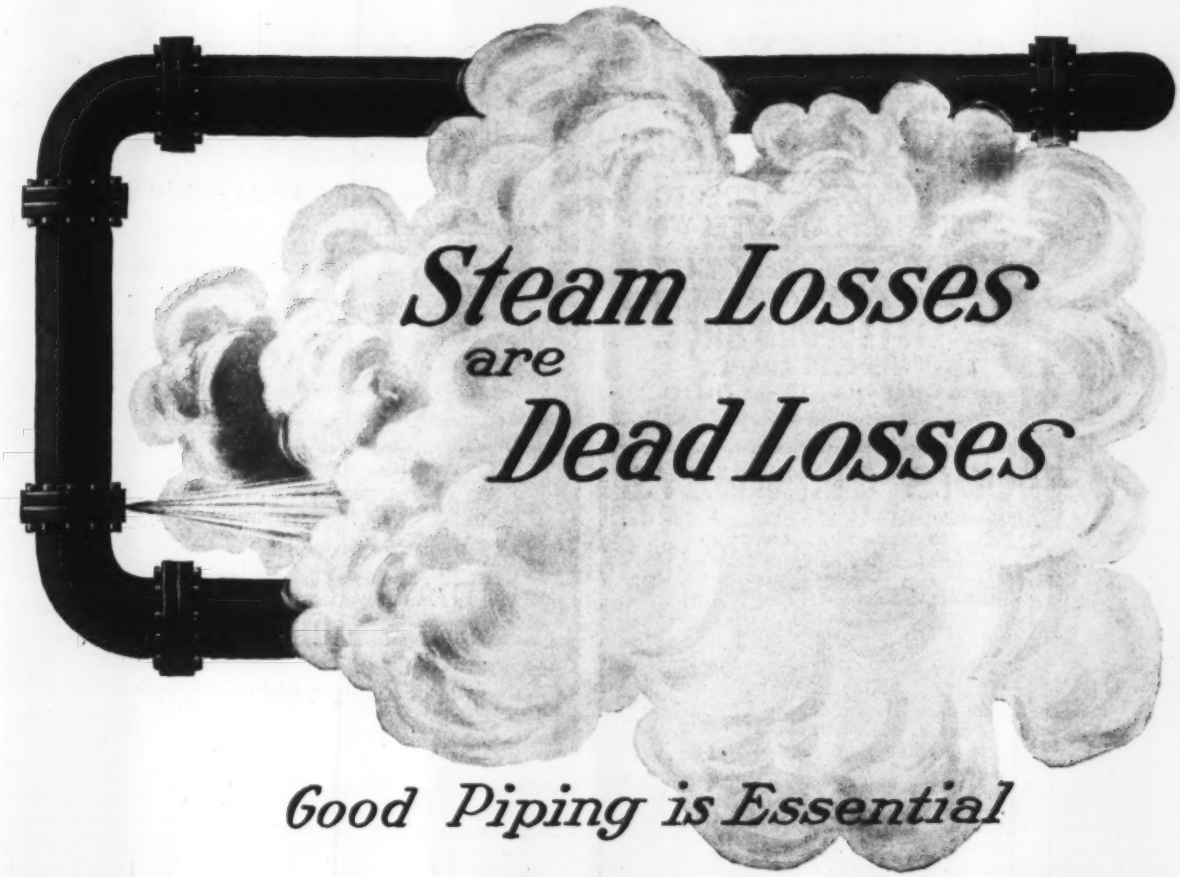

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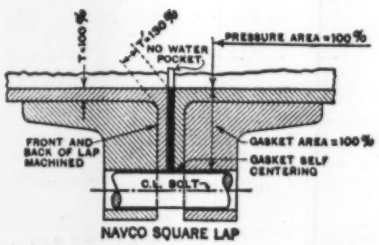

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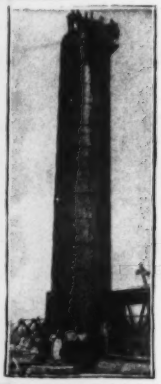

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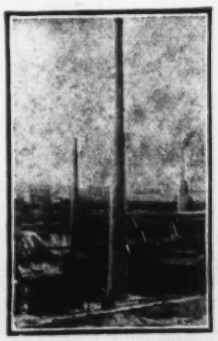

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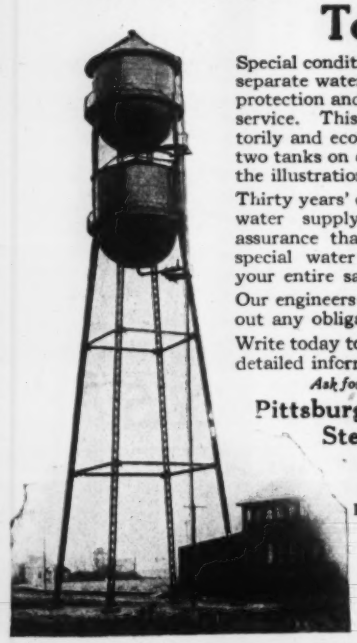

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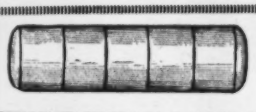

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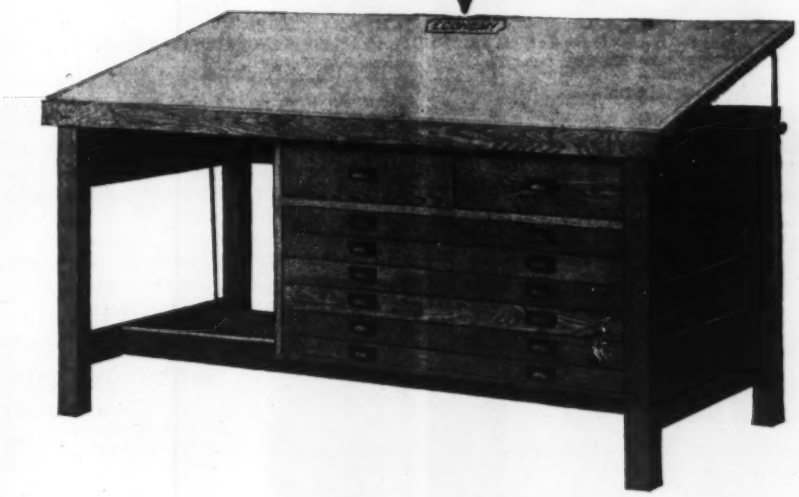

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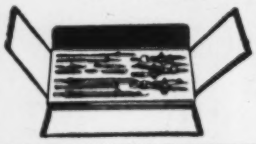

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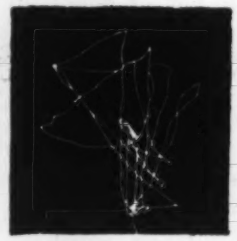

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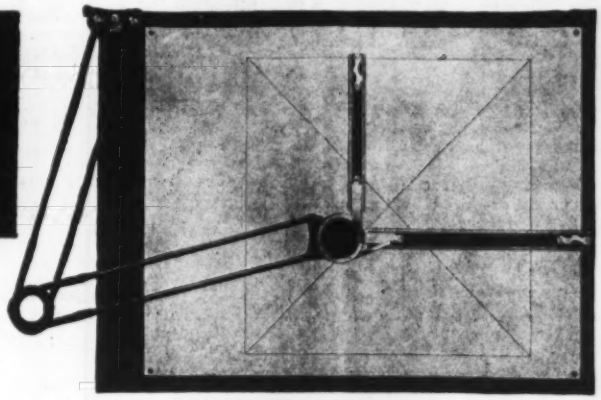

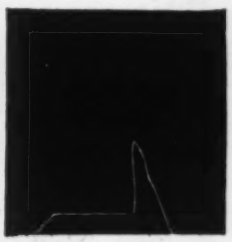

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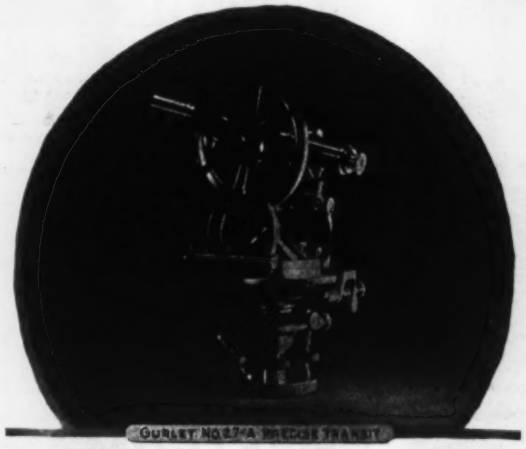

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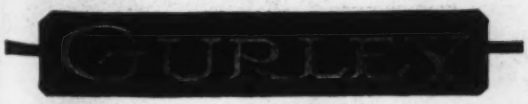

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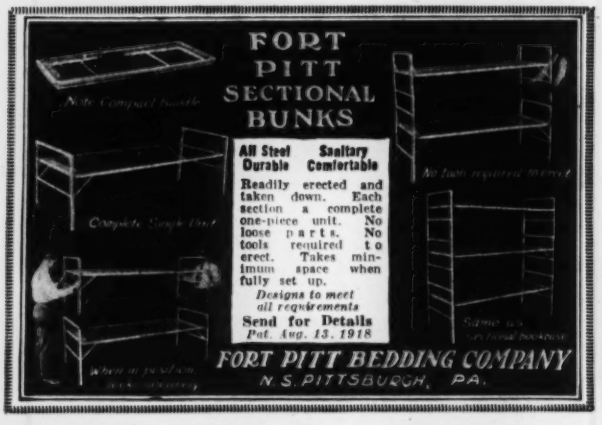
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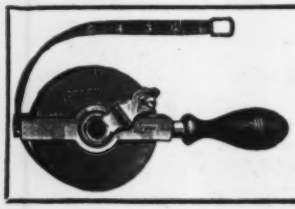

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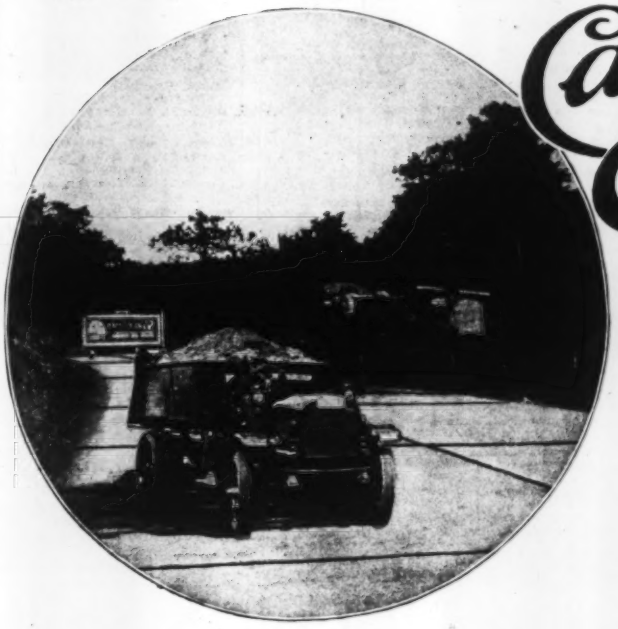

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American Bridge Co.

Garbage Disposal Apparatus
Jeffrey Mfg. Co.

Gas Producers
Blaw-Knox Co.

Gates, Sluice
Chapman Valve Mfg. Co.
Coffin Valve Co.
Coldwell-Wilcox Co.
Hardesty Mfg. Co., R.

Gauges, Loss of Head
Simplex Valve & Meter Co.

Gauges, Rates of Flow
Simplex Valve & Meter Co.

Gears
Earle Gear & Mach. Co.

Generators, Electric
Allis-Chalmers Mfg. Co.
General Electric Co.
Kerr Turbine Co.

Glass, Fireproof
(See Wire Glass)

Governors, Waterwheel
Woodward Governor Co.
Worthington Pump & Machy. Corp.

Graders, Road
Adams & Co., J. D.
Austin Mfg. Co.
Austin-Western Rd.Mchy.Co.
Erie Steam Shovel Co.
Good Roads Mchy. Co.
Koehring Company
Western Wheeled Scraper Co.

Granite
Granite Paving Block Mfrs.'

Graphite
Detroit Graphite Co.

Gratings, Subway
Irving Iron Works
Mitchell-Tappen Co.
Universal Safety Tread Co.

Gravel Washing Plants
Sauerman Bros.

Gypsum
Keystone Gypsum Fireproofing Co.
Marks Corp., H. E.

Hammers, Pneumatic
Chicago Pneumatic Tool Co.

Hammers, Steam Pile
(See Pile Hammers, Steam)

Heaters, Tar & Asphalt
Honhorst Co., The Jos.
Littleford Bros.

Hoists, Concrete Tower
Clyde Iron Wks. Sales Co.
Insley Manufacturing Co.
Lakewood Engr. Co.
National Hoisting Eng. Co.

Hoists, Contractors' Electric
Allis Chalmers Mfg. Co.
Bay City Dredge Works
Byers Mach. Co.
Clyde Iron Wks. Sales Co.
Dobbie Foundry & Mach.Co.
Lidgerwood Mfg. Co.
Mundy Hoist. Eng. Co., J. S.
National Hoisting Eng. Co.
Porter Co., H. K.
Ransome Concrete Mchy. Co.
Stroudsburg Engine Works
Vulcan Iron Works of Pa.
Yale & Towne Mfg. Co.

Hoists, Contractors' Gasoline
Clyde Iron Wks. Sales Co.
Lidgerwood Mfg. Co.
Mundy Hoist. Eng. Co., J. S.
National Hoisting Eng. Co.
Stroudsburg Engine Works
Van Dorn Iron Works Co.

Hoists, Contractors' Steam
Allis-Chalmers Mfg. Co.
Byers Mach. Co.
Clyde Iron Wks. Sales Co.
Ingersoll-Rand Co.
Lidgerwood Mfg. Co.
Mead-Morrison Mfg. Co.
Mundy Hoist Eng. Co., J. S.
National Hoisting Eng. Co.
Stroudsburg Engine Works
Vulcan Iron Works of Pa.

Hoists, Hydraulic Head Gates
Dilts Machine Wks., Inc.

Hoists, Motor, Truck
Wood Hyd. Hoist & Body Co.

Hoists, Pneumatic
Chicago Pneumatic Tool Co.
Ingersoll-Rand Co.
Stroudsburg Engine Works
Sullivan Machinery Co.

Hoppers, Concrete
Insley Manufacturing Co.
Ransome Concrete Mchy. Co.

Hoppers, Steel
Heltzel Steel Form & Ir. Co.
Honhorst Co., The Jos.

Horses, Steel
Economy Scaffold Co.

Hose, Air
Chicago Pneumatic Tool Co.

Hydrants
Chapman Valve Mfg. Co.
Ludlow Valve Mfg. Co.
Smith Mfg. Co., A. P.
Wood & Co., R. D.

Incinerators
Powers Specialty Co.

Inserts, Concrete
Concrete Steel Co.
Truscon Steel Co.

Inspecting Laboratories
(See Directory of Engineers)

Instruments, Drawing
Keuffel & Esser Co.

Instruments, Surveying
Ainsworth & Sons, Wm.
Berger & Sons, C. L.
Buff & Buff Mfg. Co.
Gurley, W. & L. E.
Keuffel & Esser Co.
Lietz Co., A
White Co., Inc., David

Iron Work, Structural and Ornamental
Hendrick Mfg. Co.
Irving Iron Works
Ryerson & Son, Jos. T.
Snead Architect. Iron Wks.
Universal Safety Tread Co.

Jacks, Lifting
McKiernan-Terry Drill Co.
Norton, Inc., A. O.

Joints, Expansion Paving
Barrett Company
Carey Co., The Philip
Servicized Products Co.
Truscon Steel Co.

Joints, Filler Paving
Barrett Company
Servicised Products Co.
Standard Oil Co. of N. Y.

Joints, Flexible Pipe
Central Foundry Co.
U.S. Cast Ir. Pipe & Fdy. Co.

Kilns, Rotary
Vulcan Iron Works of Pa.

Lamps, Arc & Incandescent
General Electric Co.

Lamps, Flood
General Electric Co.

Lath, Expanded Metal
Armco Culvert & Flume Mfrs. Assn.
Berger Mfg. Co.
Mitchell-Tappen Co.
Northwest'n Exp. Metal Co.
Truscon Steel Co.

Leadite
Leadite Co., Inc., The

Lead Pencils
Koh-I-Noor Pencil Co.

Lights, Contractors'
Carbic Manufacturing Co.
Milburn Co., Alexander

Loaders, Wagon
(See Wagon Loaders)

Locomotives, Compressed Air
Baldwin Locomotive Co.

Locomotives, Electric
Amer. Locomotive Co.
Baldwin Locomotive Co.
General Electric Co.
Jeffrey Mfg. Co.

Locomotives, Gasoline
Baldwin Locomotive Co.
Fate Root Heath Co.
Hadfield-Penfield Steel Co.
Milwaukee Loco. Mfg. Co.
Vulcan Iron Works of Pa.

Locomotives, Steam
Amer. Locomotive Co.
Baldwin Locomotive Co.
Davenport Locomotive Wks.
Vulcan Iron Works of Pa.

Locomotives, Storage Battery
General Electric Co.
Ironton Engine Co.
Jeffrey Mfg. Co.

Lumber
Eppinger & Russell Co.
Lawson & MacMurray

Manhole Covers
Central Foundry Co.

Manometers
Simplex Valve & Meter Co.

Meter Boxes
Pittsburgh Meter Co.

Meter Provers
Hersey Mfg. Co.
Pittsburgh Meter Co.

Meters, Boiler Feed Water
Builders Iron Foundry

Meters, Current
General Electric Co.
Gurley, W. & L. E.

Meters, Gas and Steam
Builders Iron Foundry
General Electric Co.
Wallace & Tiernan Co., Inc.

Meters, Venturi
Builders Iron Foundry

Meters, Water, Oil, etc.
Builders Iron Foundry
Gamon Meter Co.
General Electric Co.
Hersey Mfg. Co.
Neptune Meter Co.
Pittsburgh Meter Co.
Simplex Valve & Meter Co.
Worthington Pump & Machy. Corp.

Mixers, Asphalt
(See Mixers, Hot)

Mixers, Concrete
Austin Machinery Corp.
Cement-Gun Co.
Chain Belt Co.
Foote Concrete Mchy. Co
Koehring Company
Lakewood Engineering Co.
Ransome Concrete Mchy Co.

Mixers, Grout
Austin Machinery Corp.
Ransome Concrete Mchy Co.
Union Iron Works

Mixers, Hot
Austin Machinery Corp.
Koehring Company

Mixers, Mortar
Austin Machinery Corp.
Ransome Concrete Mchy Co.

Mixers, Paving
Austin Machinery Corp.
Chain Belt Co.
Construction Mchy. Co.
Foote Concrete Machy. Co.
Koehring Company
Ransome Concrete Mchy. Co.

Mixers, Pneumatic
Ransome Concrete Mchy. Co.

Motors, Electric
Allis-Chalmers Mfg. Co.
General Electric Co.
Westinghouse Tr. Brake Co.

Motor-Truck Bodies
Van Dorn Iron Works Co.
Wood Hyd. Hoist & Body Co.

Motor Trucks
(See Trucks, Motor)

Nitrogen
Linde Air Products Co.

Oxygen
Linde Air Products Co.

Oxy-Acetylene Process
Blaw-Knox Co.
Linde Air Products Co.

Packing, Water Pipe
Jenkins Bros.

Paints, Graphite
Detroit Graphite Co.
du Pont de Nemours & Co.
Truscon Laboratories

Paints, Light Reflecting
Cheesman & Elliot Co.
Detroit Graphite Co.
du Pont de Nemours & Co.
Truscon Laboratories

Paints, Metal Protective
Barrett Company
Carey Co., The Philip
Cheesman & Elliot Co.
Detroit Graphite Co.
du Pont de Nemours & Co.
National Lead Co.
Nolene Cmopany, The
Protexol Corp.
Servicised Products Co.
Toch Brothers
Truscon Laboratories

Pavement Breakers
Buckeye Traction Ditcher Co.

Paving, Asphalt
Carey Co., Philip
Standard Oil Co. of N. Y.

Paving Blocks, Creosoted Wood
See Creosoted Block Timber Poles, Cross-Arms, Lumber

Paving Blocks, Granite
Granite Paving Block Mfrs.'

Paving Breakers
Ingersoll-Rand Co.

Paving, Cold Patching
Standard Oil Co. of N. Y.

Paving Guards, Steel
Godwin Co., Inc., W. S.
International Steel Tie Co.

Paving Joint Filler
Servicised Products Co.

Penstocks
Blaw-Knox Co.

Pile Drivers
McKiernan-Terry Drill Co.
McMyler Interstate Co.
Union Iron Works

Pile Hammers, Steam
McKiernan-Terry Drill Co.
National Hoisting Eng. Co.
Union Iron Works
Vulcan Iron Works of Chic

Piles, Concrete
MacArthur Concrete Pile & Foundation Co.
New England Fd. Co., Inc.
Raymond Concrete Pile Co.

Piles, Creosoted Wood
Jennison-Wright Co.

Piling, Interlocking Steel
Bethlehem Steel Co.
Carnegie Steel Co.

Pipe, Bends
East Jersey Pipe Co.
National Valve & Mfg. Co.

Pipe, Cast Iron
Amer. Cast Iron Pipe Co.
Central Foundry Co.
Fox & Co., John
Glamorgan Pipe & Fdry. Co.
McWane Cast Iron Pipe Co.
U. S. Cast Ir. Pipe & Fdry. Co.
Warren Fdry. & Pipe Co.
Wood & Co., R. D.

Pipe, Concrete
Lock Joint Pipe Co.

Pipe, Corrugated
Austin-Western Rd.Mch.Co.
Canton Culvert & Silo Co.
Hardesty Mfg. Co., The R.
Newport Culvert Co.

Pipe Covering, Asbestos
Carey Co., The Philip

Pipe Covering, Wood
American Wood Pipe
Michigan Pipe Co.
Standard Wood Pipe Co.
Wyckoff & Son Co., A.

Pipe Fittings
Builders Iron Foundry
Central Foundry Co.
U.S. Cast Ir. Pipe & Fdy. Co.
Westinghouse Tr. Brake Co

Pipe Joint Compounds
Leadite Co., Inc., The

Pipe, Lock Bar
East Jersey Pipe Co.

Pipe, Lock Joint
Lock Joint Pipe Co.

Pipe, Reinforced Concrete
Austin Machinery Corp.

Pipe, Riveted Steel
American Spiral Pipe Wks.
Blaw-Knox Co.
East Jersey Pipe Co.
Hardesty Mfg. Co., The R.
Petroleum Iron Wks. Co.
Tippett & Wood

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Plastic and absolutely waterproof, du Pont Gelatin is unequalled for close shooting underground, for hard and tight places and intensive work. Recent improvements have reduced the fumes materially, increasing production time and lowering output costs. Now practically non-freezing.

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Springfield, Ill.
San Francisco, Cal.
Scranton, Pa.
Seattle, Wash.
Spokane, Wash.

EXPLOSIVES ~ SERVICE

Pipe, Sewer
Dickey Clay Mfg. Co.

Pipe Shoes
Marion Malleable Iron Wks.

Pipe, Spiral
Abendroth & Root Mfg. Co.
American Spiral Pipe Wks.
Blaw-Knox Co.
Robertson Bros. Mfg. Co.

Pipe, Tap Welded
American Spiral Pipe Wks.

Pipe, Wood
American Wood Pipe Co.
Continental Pipe Mfg. Co.
Michigan Pipe Co.
Pacific Tank & Pipe Co.
Standard Wood Pipe Co.
Wyckoff & Son Co., A.

Poles, Creosoted Wood
Amer. Creosoting Co. (Ky.)
Colonial Creosoting Co.
Georgia Creosoting Co.

Poles, Steel Structural
Blaw-Knox Co.

Powder
du Pont de Nemours & Co.

Pressed Steel Products
Berger Mfg. Co.
Blaw-Knox Co.
International Steel Tie Co.
Truscon Steel Co.
Van Dorn Iron Works Co.

Pulverizers
Jeffrey Mfg. Co.

Pumps, Air Lift
Chicago Pneumatic Tool Co.
Ingersoll-Rand Co.
Sullivan Machinery Co.
Traylor Engr. & Mfg. Co.

Pumps, Boiler Feed, Steam
Earle Gear & Machine Co.
Ingersoll-Rand Co.

Pumps, Centrifugal and Multi-Stage High Lift
Aurora Pump & Mfg. Co.
Earle Gear & Machine Co.
Erie Pump & Engine Co.
Ingersoll-Rand Co.
Keystone Driller Co.
LeCourtenay Co.
Manistee Iron Works
Morris Machine Works

Pumps, Contractors'
Construction Mchy. Co.
Ingersoll-Rand Co.
Pulsometer Steam Pump Co.

Pumps, Deep Well
Aurora Pump & Mfg. Co.
Cook, A. D.
Keystone Driller Co.

Pumps, Diaphragm
Boston & Lockport Bl. Co.
Manistee Iron Works

Pumps, Dredging and Sand
Erie Pump & Engine Co.
Marion Steam Shovel Co.
Morris Machine Works
Worthington Pump & Machy. Corp.

Pumps, Power
Cook, A. D.
LeCourtenay Co.

Pumps, Turbine
Kerr Turbine Co.

Pumps, Underwriters' Centrifugal
Allis-Chalmers Mfg. Co.
Earle Gear & Machine Co.

Pyrometers
Taylor Instrument Cos.

Rail and Rail Joints, Fastening & Specialties
Carnegie Steel Co.
Foster Co., L. B.
Rail Joint Co.

Railroad Ditchers
Erie Steam Shovel Co.
Marion Steam Shovel Co.

Recorders, Water Stage
Gurley, W. & L. E.

Reinforcing Bar Couplings
Concrete Steel Co.
Marion Malleable Iron Wks.

Reinforcing Concrete
(See Conc. Reinforcement)

Reinforcing Metal for Concrete Work
Amer. Steel & Wire Co.
Berger Mfg. Co.
Concrete Steel Co.
Corrugated Bar Co.
Truscon Steel Co.

River and Harbor Work
Raymond Concrete Pile Co.

Riveting Machines
Allen, John F.
Chicago Pneumatic Tool Co.

Road Finishers, Concrete
Austin Machy. Corp.
Dunn Road Machry. Co.
Koehring Company
Lakewood Engr. Co.

Road Oilers, Pressure
Austin-Western Rd. Mch.Co.

Road Oils & Preservatives
Barrett Company
Standard Oil of N. Y.
Universal Road Machy. Co.

Road Rollers, Gas. & Steam
Austin Mfg. Co.
Austin-Western Rd. Mch.Co.
Buffalo-Springfield Roll. Co.
Good Roads Machy. Co.

Rolls, Crushing
Allis-Chalmers Mfg. Co.
Jeffrey Mfg. Co.

Roofing, Gypsum
Marks Corp., The H. E.

Roofing, Metal
Amer. Sheet & Tin Plate Co.
Berger Mfg. Co.

Roofing, Prepared
Barrett Company
Carey Co., The Philip

Roofing, Tile
Federal Cement Tile Co.
Keystone Gypsum Fireproofing Co.
Truscon Laboratories

Rope, Wire, Transmission Hoisting or Haulage
American Steel & Wire Co.
Leschen & Sons Rope Co.
Roeblings Sons Co., J. A.

Sash Operating Apparatus
Allison Steel Products Co.
Truscon Steel Co.

Sash Steel, Window
(See Window Sash)

Scales, Automatic
Toledo Scale Co.

Schools & Colleges
(See Directory of Engineers)

Scrapers, Scarifiers, Plows
Adams & Co., J. D.
Austin Mfg. Co.
Austin-Western Rd. Mch.Co.
Western Wheeled Scraper Co.

Screens, Revolving
Good Roads Mchy. Co.

Screens, Sand, Gravel and Coal
Austin Mfg. Co.
Austin-Western Rd. Mch.Co.
Chain Belt Co.
Haiss Mfg. Co., Inc., Geo.
Hendrick Mfg. Co.
Link-Belt Co.

Screens, Water Intake
Chain Belt Co.

Searchlights
General Electric Co.

Second-Hand Equipment
See Searchlight Section

Sewage Disinfection
Wallace & Tiernan Co., Inc.

Sewage Disposal Apparatus
Dorr Company, The

Shafting
Ryerson & Son, Joseph T.

Sharpening Mach. Drill Bit
Ingersoll-Rand Co.

Sheaves
Haiss Mfg. Co., Inc., Geo.

Sheets, Iron and Steel
Amer. Sheet & Tin Plate Co.
Armco Culvert & Flume Mfrs. Assn.
Bethlehem Steel Co.
Ryerson & Son, Joseph T.

Sheets, Roofing and Siding
Amer. Sheet & Tin Plate Co.
Armco Culvert & Flume Mfrs. Assn.
Ryerson & Son, Joseph T.

Shelving Steel
Berger Mfg. Co.

Shovels, Electric
Erie Steam Shovel Co.
Keystone Driller Co.
Marion Steam Shovel Co.
Northwest Engineering Co.
Thew Shovel Co.

Shovels, Gasoline
Marion Steam Shovel Co.
Northwest Engineering Co.
Thew Shovel Co.

Shovels, Steam
Erie Steam Shovel Co.
Keystone Driller Co.
Marion Steam Shovel Co.
Osgood Company

Skips, Stone
Insley Manufacturing Co
Thew Shovel Co.

Slabs, Cement Roofing
Federal Cement Tile Co

Slag
Carnegie Steel Co.

Slate, Structural
Structural Slate Co.

Sprinklers and Sweepers Street
Austin Machinery Corp.
Austin Mfg. Co.
Austin-Western Rd. Mch.Co.

Standpipes
Blaw-Knox Co.
Chicago Bridge & Iron Wks.
Pacific Tank & Pipe Co.
Pittsb'gh-Des Moines St. Co.
Tippett & Wood

Steam Specialties
Jenkins Bros.

Steel
Ryerson & Son, Joseph T.

Steel, Curb & Gutter Forms
Heltzel Steel Form & Ir. Co.

Steel Plate Construction
Bethlehem Steel Co.
Blaw-Knox Co
Chicago Bridge Iron Wks.
East Jersey Pipe Co.
Heltzel Steel Form & Tr. Co.
Honhorst Co., The Jos.
Littleford Bros.
Petroleum Iron Wks. Co.
Pittsb'gh-Des Moines St. Co.
Riter-Conley Co.
Union Iron Works
Williams Co., G. H.

Steel, Rock Drill
Ingersoll-Rand Co.

Steel, Structural
American Bridge Co.
Belmont Iron Works
Berlin Construction Co.
Bethlehem Steel Co.
Blaw-Knox Co.
Boston Bridge Works
Carnegie Steel Co.
Eastern Bridge & Struc. Co.
Eichleay Jr. Co., John
Fort Pitt Bridge Works
Kenwood Bridge Co.
McClintic Marshall Co.
Milwaukee Bridge Co.
Minneapolis Steel & Mch. Co.
Miss. Valley Struc. Steel Co.
Morava Construction Co.
Mount Vernon Bridge Co.
Penn Bridge Co. (Pa.)
Phoenix Bridge Co.
Pittsb'gh-Des Moines St. Co.
Riverside Bridge Co.
Shoemaker Bridge Co.
Snare Corp., Frederick
Snead Architect. Iron Wks.
Virginia Bridge & Iron Co.
Wisconsin Bridge & Iron Co.

Steel, Tool
Bethlehem Steel Co.
Carnegie Steel Co.
Ryerson & Son Co., Jos. T.

Stokers
Babcock & Wilcox Co.

Strainers, Well
Cook, A. D.

Subgraders
Lakewood Engr. Co.

Superheaters
Babcock & Wilcox Co.
Power Specialty Co.

Switchboards
General Electric Co.

Tables and Boards, Drawing
Dietzgen Co., Eugene
Economy Drg. Table & Mfg. Co.
Hamilton Mfg. Co.
Pease Co., C. F.
Weber Co., F.

Tanks, Air Compressor
Chicago Pneumatic Tool Co.
East Jersey Pipe Co.
Westinghouse Tr. Brake Co.

Tanks, Elevated Steel
Chicago Bridge & Iron Wks.
Graver Corp.
Littleford Bros.
Petroleum Iron Wks. Co.
Pittsb'gh-Des Moines St. Co.

Tanks, Elevated, Wood
American Wood Pipe Co.
Continental Pipe Mfg. Co.
Pacific Tank & Pipe Co.

Tanks, Oil
American Bridge Co.
Blaw-Knox Co.
Riter-Conley Co.

Tanks, Septic
Dickey Clay Mfg. Co.

Tanks, Welded and Riveted
Hardesty Mfg. Co., The R.

Tapes, Steel and Metallic
Dietzgen Co., Eugene
Hamilton Mfg. Co.
Keuffel & Esser Co.
Lufkin Rule Co.
Wiebusch & Hilger, Ltd.

Tar
Barrett Company

Testing Laboratories
(See Engineers' Directory)

Thermometers
Taylor Instrument Cos.

Ties, Creosoted Wood
Amer. Creosoting Co. (Ky.)
Colonial Creosoting Co.
Georgia Creosoting Co.
Jennison-Wright Co.

Ties, Steel
Carnegie Steel Co.
International Steel Tie Co.

Tile, Concrete Bldg.
Federal Cement Tile Co.
Truscon Laboratories

Tile, Roof Cement
Federal Cement Tile Co.
Truscon Laboratories

Tin Plate
Amer. Sheet & Tin Plate Co.
Bethlehem Steel Co.

Tools, Pneumatic
Chicago Pneumatic Tool Co.
Ingersoll-Rand Co.

Towers, Concrete
(See Hoists, Conc. Tower)

Towers, Radio
Blaw-Knox Co.

Towers, Transmission
American Bridge Co.
Blaw-Knox Co.

Track, Industrial & Portable
Bethlehem Steel Co.
Easton Car & Constr. Co.
Foster Co., L. B.
International Steel Tie Co.
Lakewood Engr. Co.

Traction, Alligator
Buckeye Traction Ditcher Co.

Tractors
Best Tractor Co., C. L.
Minne. Steel & Mchy. Co.

Trailers
Watson Truck Corp.

Transformers, Electric
General Electric Co.

Transits and Levels
Ainsworth & Sons, Wm.
Beckmann Co., L.
Berger & Sons Co., C. L.
Buff & Buff Mfg. Co.
Gurley, W. & L. E.

Transmission, Mchry. Power
Chain Belt Co.

Treads, Safety
Concrete Steel Co.
Irving Iron Works
Truscon Steel Co.
Universal Safety Tread Co.

Trolleys, I-Beam
Brown Hoisting Machy. Co.

Trucks, Motor
Autocar Co., The
Watson Truck Corp.

Tunnel Liner Plates
Blaw-Knox Co.

Turbines, Hydraulic Impulse and Reaction
Allis-Chalmers Mfg. Co.
Pelton Water Wheel Co.
Smith Co., S. Morgan
Worthington Pump & Machy. Corp.

Turbines, Steam
Allis-Chalmers Mfg. Co.
General Electric Co.
Kerr Turbine Co.

Turbo Generators, Steam
General Electric Co.

Turntables
American Bridge Co.
Blaw-Knox Co.
Champion Engr. Co.
Easton Car & Constr. Co.
Foster Co., L. B.

Underpinning
Spencer White & Prentis
Underpinning & Found. Co.

Unloaders
Erie Steam Shovel Co.

Unloaders, Car
Haiss Mfg. Co., Geo.
Heltzel Steel Form &Ir. Co.
Jeffrey Mfg. Co.
Wellman-Seaver-Morgan Co.

Valves, Air, Water, Steam and Gas
Chapman Valve Mfg. Co.
Coldwell-Wilcox Co.
Coffin Valve Co.
Golden-Anderson Valve Specialty Co.
Ludlow Valve Mfg. Co.
National Valve & Mfg. Co.
Simplex Valve & Meter Co.
Smith Mfg. Co., A. P.

Valves, Altitude
Golden-Anderson Valve Specialty Co.
Ludlow Valve Mfg. Co.

Valves, Angle, Check, Gate and Globe
Chapman Valve Mfg. Co.
Coffin Valve Co.
Golden-Anderson Valve Specialty Co.
Jenkins Bros.
Ludlow Valve Mfg. Co.
National Valve & Mfg. Co.
Simplex Valve & Meter Co.
Westinghouse Tr. Brake Co.

Valves, Automatic
Golden-Anderson Valve Specialty Co.
Ludlow Valve Mfg. Co.
Westinghouse Tr. Brake Co.

Valves, Control Electric
Chapman Valve Mfg. Co.
Dean, Ltd., Payne

Valves, Control Hydraulic
Chapman Valve Mfg. Co.

Valves, Float
Golden-Anderson Valve Specialty Co.

Valves, Regulating
Golden-Anderson Valve Specialty Co.
Ludlow Valve Mfg. Co.
Simplex Valve & Meter Co.

Valves, Return
Golden-Anderson Valve Specialty Co.

Valves, Safety
Golden-Anderson Valve Specialty Co.

Valves, Sewage
Chapman Valve Mfg. Co.

Valves, Sluice
Champion Engr. Co.
Chapman Valve Mfg. Co.
Coffin Valve Co.

Wagons, Asphalt
Watson Truck Corp.

Wagons, Dump, Auto
Austin Mfg. Co.
Austin-Western Rd. Mch.Co.

Wagons, Dump
Austin Mfg. Co.
Austin-Western Rd. Mch.Co.
Watson Truck Corp.

Wagon Loaders
Austin Machinery Corp.
Austin Mfg. Co.
Austin-Western Rd. Mchy.
Erie Steam Shovel Co.
Haiss Mfg. Co., Inc., Geo.
Jeffrey Mfg. Co.
Portable Mchry. Co.
Specialty Engr. Co.

Water-Main Cleaning
Nat'l Water Main Clean. Co.

Waterproofing Compounds and Materials
Anti-Hydro Waterproof. Co.
Barrett Company
Carey Co., The Philip
Sonneborn Sons, L.
Toch Brothers
Truscon Laboratories
Weber Engineering Co.

Water Purification
Dorr Company
Electro Bleaching Gas Co.
Wallace & Tiernan Co., Inc.

Water Softeners
Amer. Water Softener Co.
California Filter Co.
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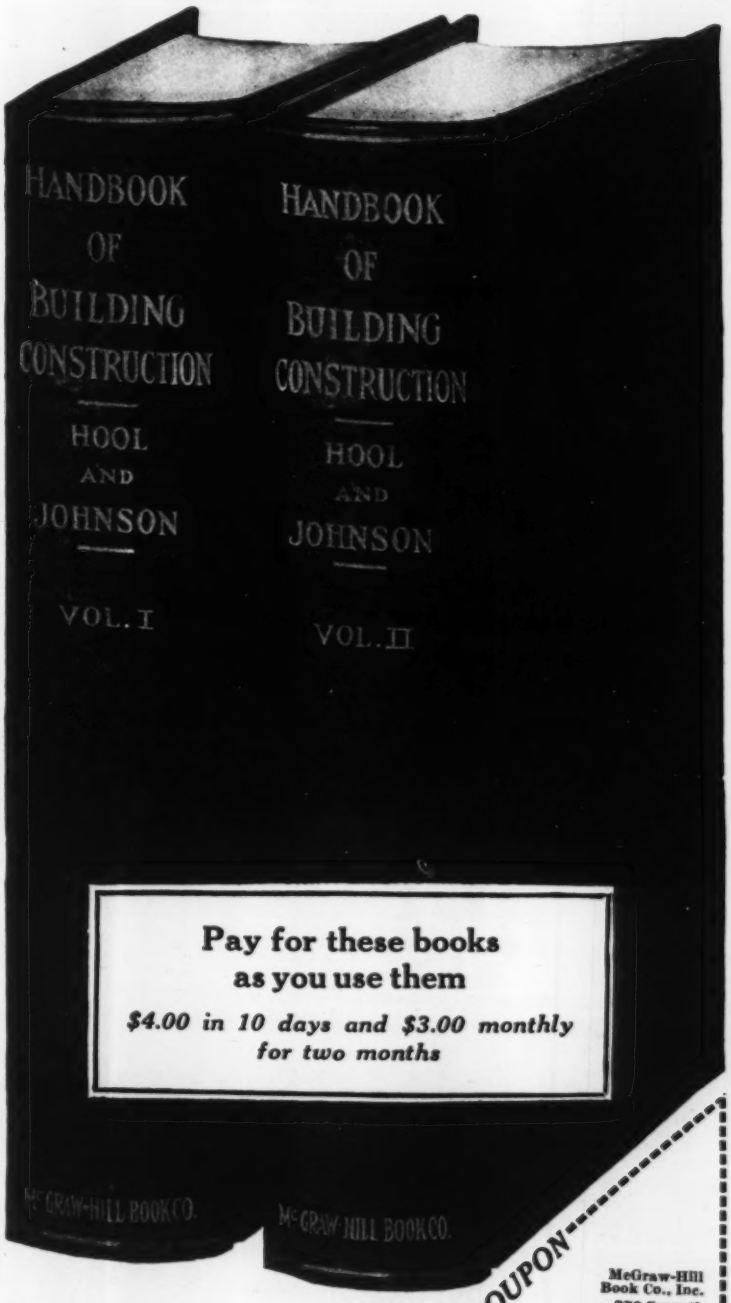
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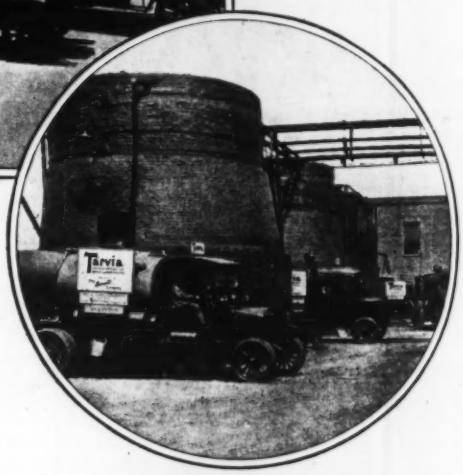

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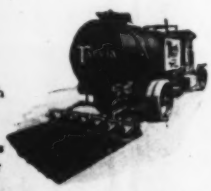

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